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GALVANISM, OR FARADISM? WHICH IS TO BE USED,
AND WHEN?

A CLINICAL LECTURE DELIVERED AT JEFFERSON COLLEGE HOSPITAL,

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GENTLEMEN: We have had before us many cases in which the applications of electricity have been directed. Sometimes it is the galvanic, sometimes the faradic current which we employ for diagnosis or for treatment. A little inquiry will easily demonstrate, that, if we use electricity as it should be used, both kinds of batteries are necessary. In the purchase of an instrument, the buyer is sometimes misled by the statement that a particular battery furnishes all the currents—a primary or galvanic current, and the various secondary currents. A faradic instrument, of course, furnishes an induced current, and the induction exerted between the coils of the primary wire may be utilized, as well as that from the secondary wire, so that various modifications of the induced currents are available. But no one should be deluded into believing that a faradic battery can also furnish a galvanic current. Pray, do not understand me as saying that the two forms of batteries cannot be combined in the same apparatus. These may, of course, be put in one box, both faradic and galvanic combinations, and the dealers now make very beautiful and perfect instruments of this kind.

I am thus minute in stating these elementary facts, because I am frequently interrogated by students and physicians in regard to these points. I start out with the declaration, then, that if you expect to use electricity in a truly scientific way, you must be provided with both kinds of apparatus, either separately, or combined in one box. Much may be done by faradic application alone; but in its own sphere, and if employed merely to affect the imagination of the patient, it will be quite as successful as both. I hope none here present, however, will descend to electricity quackery, whether openly or under the guise of its scientific use. As I proceed with

the subject, I will indicate in passing the form of current used in particular cases. I wish also to address myself more especially to current delusions about the use of electricity. Let us take for illustration a common form of paralysis—hemiplegia. No spectacle is more often seen than the tinkering of an old hemiplegia with a faradic battery. The muscles are daily shaken up, and physician and patient are finally at their wits' end, for no improvement follows. No one, at all acquainted with the subject, would expect to benefit an ordinary hemiplegia by faradizing the muscles of the paralyzed members, unless two conditions existed: 1, wasting, degeneration, and impaired electro-contractility; 2, late rigidity. In many cases of hemiplegia, the muscles are of their normal size and firmness, and readily respond to faradic stimulation; then no good can be done by applying electricity. When late rigidity exists, the faradic and galvanic currents are useful if rightly applied. Observe the conditions present. On one side the flexors rigidly contracted, and drawing in the fingers on the palm. The nails cannot be cut, and the cast-off epidermis accumulating decomposes; ulcerations occur, and a horrible fetor is given forth. On the other side, the extensors of the fingers, relatively less powerful in the normal state, also, are now relatively weaker, and are unable to oppose the over-action of the extensors. As the galvanic current, when continuously applied, allays spasm and over-action, the flexors should have proper galvanic applications. As the extensors are weak and need stimulating, the faradic current should be applied to them. The same method of management is applicable to *torticollis*, or wry neck. On one side are the rigid, over-acting muscles; on the other, a group of weak or paretic muscles, quite unequal to maintain the contest with their antagonists. To galvanize and relax the one, and faradize and strengthen the other, are the obvious indications, and the successful method of treatment.

In paralyzes due to disease of the spinal cord both forms of currents are applicable to diagnosis and to treatment. Thus, we meet with cases in which the muscles react differently to the faradic and galvanic currents—cases in which the muscles will not respond to faradic, but will respond to galvanic stimulation. There are other examples of paralysis in which the muscular contractility to both currents is retained; and still other cases present themselves in which the response to current stimulation is impaired merely and not lost.

I have already stated a fact, of which you have repeatedly seen the verification in this amphitheatre, that in ordinary hemiplegias the electro-contractility is preserved. When paraplegia, for example, is produced by disease of the dorso-lumbar enlargement of the cord, which is the centre for the nerves proceeding to the lower extremities, the power of the muscles to respond to the faradic current is presently entirely lost, but these paralyzed muscles are then found to contract to a slowly interrupted galvanic current. Further, when a paraplegia is due to disease of the cord, *above* the dorso-lumbar enlargement, leaving that untouched, the muscles of the lower extremities respond readily to the faradic and galvanic currents. In still other cases, say, disseminated myelitis, with lesions all along the cord, leaving tracts of healthy tissue, the muscles connected by nerve filaments to the diseased part of the cord lose their power to contract, and those muscles connected with the healthy parts of the cord retain their power to contract, on faradic stimulation. In fact, the diagnostic point is, that paralyzed members receiving their innervation from a diseased part of the spinal cord lose their electro-contractility to the faradic current, and

preserve it when that part of the cord from which the nerves are given off is in a healthy state, although elsewhere the cord may be diseased. The importance, then, of using both currents is very obvious. But there are other examples, not less striking. In cases of disease and injury of motor nerve trunks, the contractility of the muscles receiving filaments from them is variously affected. When the initial hyperæmia occurs in neuritis, the irritability of the nerve, for a brief period is heightened, and the muscular contraction occurs with abnormal readiness on faradic and galvanic stimulation; but soon the electro-contractility declines, and is then extinguished as to the faradic current, but is retained as to the galvanic current. Not only do the muscles fail to respond to the faradic current, but they respond with more than usual readiness to the galvanic current—to a less strength of current than indeed suffices to move the healthy muscles. There are differences as to anodal and cathodal opening and closing of the circuit, which are expressed in definite formula, but not to distract your attention from the fundamental proposition, I merely mention this fact. The muscles degenerate as the injuries to the nerve proceed, and finally they cease to respond to the galvanic current. If the nerve recovers from the effects of the inflammation, the contractility of the muscles to the faradic current is finally restored, and the response to galvanic excitation lessens in readiness until it becomes normal.

It has been observed that in these cases of neuritis, the response to the will, as recovery takes place, precedes by many days the response to the faradic current, reversing the order in which the loss of contractility occurred. These changes in the muscular reaction to galvanism and faradism, are entitled by Erb "the reactions of degeneration," an expressive phrase coming into general use, and with which you should be familiar. These reactions of degeneration take place when the spinal cord or the nerve trunks are diseased. They are typically exhibited in the cases of facial paralysis. A current of cold air directed against the seventh nerve in front of the external auditory foramen—the *pes anserinus*—produces, sometimes, a paralysis of all the muscles to which the nerve filaments are distributed. You have had various examples of this malady brought before you, and its peculiarities pointed out. In a short time after the muscles are paralyzed, it is found that no movements can be induced by a faradic current, never so strong, and that a galvanic current barely strong enough to cause contractions on the healthy side will act energetically on the paralyzed muscles. These facts have been exhibited in cases in your presence. If we compare such a facial paralysis with that which accompanies hemiplegia, we observe great differences in the reactions: in the latter both faradic and galvanic currents act energetically; in the former, only the galvanic produces responses.

Galvanism and faradism are much more important in the treatment of paralyses characterized by the reactions of degeneration than in hemiplegias. Both currents are required. As the galvanic current only can cause movements of the muscles, in certain cases, this must be applied until the contractility to faradism is restored—for it is found that persistent use of the former has this result. When the faradic current causes movements, it can then be continued until the cure is effected. If the degenerating muscles do not respond to either currents, then it may be concluded that the muscular elements have disappeared, being replaced by connective tissue and fat. Certain paralyses from disease of the anterior cornua of the spinal cord—infantile paralysis, for example—are character-

ized by the rapidity with which the muscles waste. These affections are designated by Charcot amyotrophic, to express this peculiarity. Electricity is our special resource to arrest these trophic degenerations. In these affections the reactions of degenerations are perfectly characteristic, and hence the galvanic current must be used until the contractility to the faradic current is restored. If the wasting of the muscles proceeds unchecked and the anatomical elements are destroyed, no electrical applications will be of any service. They must be undertaken, therefore, before the muscles are too far gone to be restored. When, by systematic excitation, the muscles have recovered their normal volume and contractility, electricity can accomplish nothing more, for the centric disease on which all depends may not be remediable.

In morbid states involving *sensibility* the faradic current is of little service. A very high tension current, with excessively rapid interruptions applied along the trajectory of a nerve, is sometimes serviceable in a neuralgia. The power to relieve pain is the property of the galvanic current. A descending stable current is, theoretically, the best form of application to relieve the irritability of a sensory nerve, but in practice it is found that the direction of the current is of little moment, the relief being the same in what direction soever the electricity may be flowing. It follows then, of course, that the galvanic and not the faradic current is to be used in the treatment of neuralgia. The use of the faradic current in such cases is one of the medical delusions against which we must protest.

In the treatment of internal maladies the galvanic current is chiefly used. It has been abundantly proved that this form of electricity penetrates to the deepest organs and tissues, whilst faradism does not so penetrate. Galvanism affects the calibre of the vessels, and thus has an influence on the nutrition of the tissues. If the faradic current is applied directly to the sympathetic nerves, the vessels innervated by these nerves are thrown into a condition of tetanic spasm, and the blood stream is arrested. Applied on the surface, however, such effects do not follow, because the current does not penetrate sufficiently. The galvanic current does penetrate to the vessels when applied to the surface, and hence the important results which may follow its proper administration. It is important to understand the mode in which galvanism affects the circulation. We owe, I think, chiefly to the labours of Onimus and Legros the facts which I am now about to submit. The normal movement of a healthy arteriole is that known as vermicular. An impulse beginning at one point is transmitted by a succession of waves to a distant point, and as one part contracts, another dilates. Now Onimus and Legros have shown that whilst the faradic current tetanizes and stops the distribution of blood, the galvanic promotes and enlarges the vermicular movements, and thus increases the quantity of blood passing in a given time. The nutrition of organs and tissues must, necessarily, be promoted by the galvanic current. In this, probably, we have an explanation of Remak's "catalytic effects." The practical application of these principles is of much importance. If we wish to arrest hemorrhage from an organ, such as the uterus, to which we can apply the electrodes directly, which form of electricity ought we to use? the faradic or galvanic? The former unquestionably, for it not only causes strong uterine contractions, tetanizes, but it also affects the vessels in the same way. I need hardly stop to say that faradism is an excellent expedient in uterine inertia with hemorrhage.

On the other hand, suppose our object be to improve the condition

of an enlarged, flabby, and congested uterus, the vessels being dilated, the blood-streams sluggish—then the galvanic current should be applied, for under its use the tone of the vessels would be restored, and the blood-streams would be propelled with more force and rapidity. In any attempts to improve the nutrition of the deeper parts of the body beyond the reach of direct applications, the galvanic current only can be used, since the faradic does not diffuse to the necessary depth. In the treatment of those neuroses of the skin, due to changes in the condition of the sympathetic ganglia, remarkable results are often obtained from the form of galvanization known as centric. The tonic and reconstituent effects which follow the application of galvanism to the cervical sympathetic, to the pneumogastric, and to the spinal cord, are doubtless due to the increased action of the vessels and to the stimulation of the nervous apparatus presiding over the movements of the chylipoietic viscera. Also, doubtless, something is due to the action of the current on the trophic system. What explanation, soever, may be adopted, the fact remains that stimulation by galvanism of the important apparatus of animal and organic life, mentioned just now, has remarkably good effects in some disorders of nutrition. I may mention, in illustration, the curative influence of galvanism in exophthalmic goitre. I mean, of course, this malady as it does exist, free from any structural lesions of the heart and of the thyroid gland. Under the persistent use of galvanism the rapid action of the heart, the dilatation and increased pulsation of the vessels of the neck and of the thyroid, the enlargement of the thyroid due to enlargement of its vessels, and the protrusion of the eyes cease, and permanently cease in favourable cases.

There is a form of faradic application, which is alleged to promote nutrition—the general electrization of Beard and Rockwell—in which the whole surface is in turn stimulated by faradic applications to the skin. This acts on the cutaneous nerves and vessels, and does generally promote the activity of the nutritive functions, but it is slow and not efficient. Weir Mitchell applies the faradic current in another way. He throws all the muscles of the body in turn into action by a faradic current of sufficient strength. This acts by increasing the circulation and the oxidation processes in the muscles, for muscular contraction can no more take place than any force can be evolved without the consumption of material. As the most of the heat production of the body occurs in the muscular tissue, the increase of muscular contraction means increased temperature and consequent greater activity in the nutritive functions generally. Indeed, making all the muscles contract by a faradic current is exercising them, and thus Mitchell succeeds in exercising his patients without voluntary efforts on their part.

In further exemplification of the power of galvanism to affect the function of nutrition may be mentioned the solution of cataract, which, it is alleged, has been accomplished by application of a galvanic current to the affected eye. An additional case, lately published in *Virchow's Archiv*, by Dr. Nefel, of New York, has been warmly disputed by Knapp, Agnew, and Loring, who have shown that Dr. Nefel was over-sanguine.

Galvanism can alone be used to affect the condition of the brain and spinal cord. Faradism does not pass the barrier of the bony envelope to these parts, but galvanism has been experimentally shown to do so. That galvanism, and not faradism, should be used when it is proposed to reach these parts, seems, therefore, conclusive. There can be little question that galvanism is highly serviceable in certain vascular states of the intra-

cranial organs. We must bear in mind how galvanism affects the vessels, in order to apply it correctly. I have already stated that Onimus and Legros have shown how galvanism promotes the normal vermicular motions of the vessels, and is, therefore, indicated when the circulation is languid from paresis of the vessel walls. That state of the intracranial circulation which exists when atheromatous changes have occurred in the vessels, and the walls of the arterioles are yielding, and miliary aneurisms forming, and characterized objectively by failing memory, weakened power of attention, vertiginous sensations, etc., is much improved by the daily application of a weak galvanic current to the head, kept up for some weeks or months; the individual applications, however, being less than five minutes in duration.

The propriety and utility of applying galvanism to the brain, in cases of embolism and cerebral hemorrhage, are much disputed. The rule is to apply galvanism, only, after all acute symptoms have subsided. As, however, the collateral hyperæmia and œdema do much mischief, it is surely desirable to prevent or limit them. We possess no agents which can act on the contractility of the vessels with the promptness and efficiency of galvanism. If rightly applied, the current being weak, substantial good may be done in the direction I have indicated. Sudden, strong applications, shocks, may do serious harm. The relaxed state of the vessels following acute meningitis, or cerebro-spinal meningitis may be toned up, and soft, unorganized exudations remaining after the acute inflammation, absorbed, under the stimulation of galvanism, but only currents of moderate strength are at all proper. I need hardly add that faradic applications are useless under these circumstances, and could only do injury if persisted in.

As a general rule, in the neuroses of the respiratory organs galvanism is used rather than faradism, but there are some exceptions. Remarkably good results are obtained in some cases of asthma by galvanization of the pneumogastric, sympathetic, and phrenic. A very successful case has lately been reported in which faradism was alone used. I have seen hiccough promptly arrested by a strong faradic current, when galvanism was used in vain; but this success of the faradic application was due to the action of inhibition. The reflex hiccough was arrested by the simultaneous arrival at the centre of another impression. The method of treating hiccough by faradism consists in sending through the walls of the thorax a strong current, just as the spasm is about to occur. The result is—the hiccough is inhibited. Neuralgia of the cardiac plexus, of the solar plexus, and of the stomach, or gastralgia, are most effectively treated by galvanism. Torpor of the muscular layer of the large intestine may be successfully overcome by both currents, but they differ in action; faradism affects the bowel rather at the point of contact, and induces strong tetanic contractions; galvanism originates movements, which are propagated in a vermicular manner much more widely. The best results are obtained by a combination of the two agents.

No systematic attempts have been made to promote the functional activity of the chylopoietic viscera by galvanic treatment, but it is highly probable that this remedy might be used with good results. The state of functional depression, diseases characterized by impaired nutrition, etc., are those which might be much improved by systematic galvanic treatment.

Both currents are used in the maladies of the sexual system, male and

female. I have already indicated the principles regulating the employment of faradism and galvanism in uterine diseases. Probably faradism is more effective as a stimulant in amenorrhœa, as it is in uterine inertia, whilst galvanism is more serviceable in the vascular states characterized by relaxation. In the treatment of impotence in the male both forms of currents are useful, but their action is not the same. When the erections are wanting in force, due to imperfect filling of the veins of the erectile tissue, galvanism is more effective because of its power to increase the vermicular movements of the vessel's walls. When anæsthesia of the external organs exists, generally or in part, the faradic brush is serviceable.

In the treatment of affections of the chylopoietic system, one electrode properly insulated should rest in the rectum, and the other should be applied over the abdomen, all parts being brought successively within the circuit. A properly insulated electrode, flexible, and of the right length, could be readily introduced into the stomach. From such a position of the electrode, the current could be diverted to the various organs, and especially to the semi-lunar ganglion and solar plexus. The recent observations of Da Costa and Longstreth on the changes in the renal ganglion in Bright's disease, furnish an additional motive for further extension of galvanic applications by intra-stomachal electrodes.

Finally, gentlemen, as the manner of applying electrodes is important, I must say something of the details concerned. In faradic applications well-moistened sponge electrodes are used when it is desired to reach the muscles, for the conductivity of the tissues is determined by the amount of water present in them. When single muscles are to be stimulated, the olive-pointed electrodes of Duchenne are best, and they must be covered by soft leather, and not by sponge. When muscular groups of large size are to be acted on, large sponge electrodes may be used. The larger the electrode, and the more thoroughly moistened, the less the pain. When the skin alone is to be faradized, all moisture should be carefully wiped off, and some drying powder dusted over the surface. When galvanic applications are to be made, the form and size of the electrodes will depend on the object in view; for single muscles, and separate nerve trunks, small electrodes are employed; for large muscular groups, and for pain in many nerve filaments, large, well-moistened sponge electrodes are best.

The injunction, in systematic works, to add a little salt to the water with which the sponge electrodes are moistened, is proper only in the case of galvanic applications to the face and head. In neuralgias of the extremities, especially of long standing, I am convinced that we should use powerful currents, and, therefore, make the applications with large electrodes, moistened, but not with salt water. Not sufficient attention is paid to the duration and number of the *séances*. In galvanic applications about the head the sittings should not exceed five minutes, but they may be repeated several—say three—times a day. In neuralgias the applications should be more prolonged, and should be repeated at short intervals. Much better results would be obtained in these affections, sciatica, for example, if the applications of galvanism were fifteen minutes long, and repeated every three or four hours. These statements are based on some experience with these frequent applications, and are not merely speculative theories. In the treatment of muscular paralysis by faradism, it should be remembered that the muscles are readily fatigued, and that no benefit results from treatment which has this effect. As a rule, the smallest strength of current which will induce muscular contractions, is only

necessary. The individual muscles will bear exercise in this way from five to fifteen minutes, and the applications may be repeated about twice daily.

Every physician employing electricity as a remedy should give the necessary time and attention to the applications, and should resist the inclination to get through with them as quickly as possible, when numerous and fatiguing. Provided with suitable apparatus, and an adequate knowledge of the subject, the physician will find himself possessed of a most valuable remedy, capable of results which none other can achieve in its own province.

ON THE INTERDIAGNOSIS OF INSENSIBILITY FROM VARIOUS CAUSES.

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GENTLEMEN: Questions somewhat of the following kind are likely to be put to you one day, and are full alike of clinical interest and medico-legal importance: What is the matter with an individual who has been picked up on the road insensible, irrational, or inarticulate, and about whom no antecedents whatever are known? Is he ill, drunk, drugged, suffering from brain concussion, or from coma after an apoplectic or epileptic fit?

Syncope, trance, catalepsy, and coma are names severally used by medical writers to designate states of insensibility which the lay public group vaguely under fits.

Syncope is fainting; it may be otherwise described as a condition of body in which there is a death-like pallor, with loss of muscular power and of consciousness. Trance is a state of death-like faintness in which, however, some consciousness is retained, although the person is unable to move or speak. A faint is ordinarily (when an individual has not lost a very large amount of blood) an exceedingly transitory affair. A person collapses rather than falls to the ground in a faint; his knees bend under him, he subsides into the sitting posture, his head drops forward, and by the time the head has thus sunk to the level of the heart, or below it, the circulation through the brain becomes sufficiently restored for consciousness to return. In a faint a person seldom bruises his face. Upon waking up he may feel sick or giddy, or alarmed, but his brain resumes its thinking function usually at once and entirely.

In states of trance—of which I possess no personal experience, but may refer you to accounts to be read in Smith's "Forensic Medicine," pp. 540-542, and Forsyth's "Medical Jurisprudence," pp. 125-130, 155, and pp. 165-188—it appears that the body is to all appearance inanimate, and there is no power to move a muscle, the limbs meanwhile remaining perfectly flexible. The peculiarity attached to this condition is that the individual may hear, see, and remember all that goes on about him. There is no perceptible pulse or respiration, and hence trance has been mistaken for death, but we possess no recent or philosophical observations upon this form of faint. The recorded cases do not tell us of the temperature, or whether or not the muscles react to galvanic stimulus. Burial alive in this condition, except at sea, is highly improbable, but in no case would you be justified in making a post-mortem or consigning a body to burial unless you were satisfied from the presence of rigor mortis or appearances of putrefac-

tion that death was actual. Catalepsy, again, is a rare inanimate condition; still I once had a case under my care which accorded well with the descriptions that have been given of it.

A young man of nineteen was picked up in Fleet Street insensible, not fallen, but standing stiffly, unable to move or to articulate. Here are the features that distinguish this state, all which he presented in other similar seizures which he had for several days afterwards while in the hospital. Thus while carrying something about, or sitting up in bed, or attempting to poke the fire, his eyes would suddenly acquire a fixed gaze, and he would remain arrested as it were in his act. We could set his limbs in any posture we pleased, and there he remained like a mesmerized cock, to the amusement of the nurses and other patients. I watched him on several occasions. There was not the slightest twitching or spasm of any of his muscles. His pulse was slow, and so were his respirations, his extremities cold and flabby, the axillary temperature remained natural. He would bear pinching or pricking without flinching, and took no account of our bawling his name close by his ear. There was no reason to think that he was feigning, and it would be difficult, I fancy, to feign and act a disease so well as he did. To quote from Dr. Copland's Dictionary, vol. i. p. 292: "The statue-like appearance and muteness of the cataleptic alone suffices to distinguish this disease. There is neither the lividity of asphyxia, the pallor and general flexibility of syncope, the stertor of coma, the paralysis of apoplexy, nor the movement and dreamy mental automatism of somnambulism."

Coma, however, because arising from very various causes, is the single one of the several states mentioned by them as likely to offer much difficulty in diagnosis. Coma may be due—1. To *pressure* exercised on the brain, arising (a) from within the ventricles, effusion therein; (b) from depressed fracture; (c) from effusions outside the brain between hair and membranes. 2. To *alteration* in molecular state of brain from some concussion, contusion, bruising, oedema, apoplectic extravasation. 3. To brain poisoning by insufficiently oxidized blood, uræmic blood, narcotics, anaesthetics, inebriants.

I cannot give you certain symptoms for diagnosing each of these causes of coma, but I may aid you in excluding some of them, and thus help you to arrive at a correct diagnosis in particular instances. The profound coma produced by serous effusion into the ventricles of the brain, to judge from what I have seen in dropsy, renal or cardiac, and by what happens in tubercular meningitis, is gradually reached through a stage of sopor. The individual at first is sleepy, then dreamy and slow of apprehension, difficult to awake, and finally incapable of being aroused at all. Reflex movements may be excited for a while, later the face is pale, the temperature falls. The breath is either Cheyne-Stokes or principally diaphragmatic and stertorous. At first there is power to swallow, afterwards acts of deglutition fail to be coördinated. The pupils are non-characteristic, but more often dilated than contracted. (a) The coma due to depressed fractures, or to effusion of blood or pus or fluid between the brain and the membranes, is as sudden in its advent as its cause may have been. Usually the breath is stertorous, the pupils are contracted, and the temperature is normal or above normal, the skin perspires profusely. No or only slight reflex response is made to galvanic or cutaneous stimulation.

You will be guided to the diagnosis of fractured skull by bleeding or oozing of bloody serum from the ear or nose or by ecchymosis of the eye, and towards large apoplectic effusion of blood upon the surface of the brain by the stertor of the breathing and complete absence of reflex irritability. (b) When the coma is due to alteration in the molecular state of the brain, local contusion, or apoplectic extravasations, the face is usually pale, the temperature fallen below normal;

the reflex irritability, although variable, is apt to be greater on one side of the body than on the other; the pupils may be unequal, and evidence of some hemiplegia is generally discoverable in the muscles of the face or eye.

It seems like hair-splitting in diagnosis to dwell upon what may aid you to distinguish between coma due to general compression of the brain substance and coma due to more localized brain injury, with general circulatory and nutritional disturbance, but I give you the best clues I can, such as have served me sometimes well; the evidence of any hemiplegia in a case of profound coma is always in favour of localized injury of brain rather than of general pressure.

The coma may, however, be due to some brain-poisoning, the sources of which I have grouped under heading 3. Now, deficiency of oxygen and excess of carbonic acid in blood produces coma—as, for example, in the inhalation of laughing-gas or nitrous oxide, when the face is black, the veins turgid, the skin hot, the muscles irritable, and reflex spinal irritability is heightened.

Again, the blood-poisoning may be due to the action of some gas inhaled which interferes with or arrests the oxygen-carrying properties of the blood-cells. Sulphuretted hydrogen and carbonic oxide both appear to act in this way. The circumstances of the accident, the conditions under which the person was found, as well as some significant clinical appearances, already discussed by me, should facilitate the recognition of this source of coma. This blood change, if profound, is not recovered from.

Brain-poisoning and coma by anæsthetics and inebriants are usually detectable by the odour of the breath of the comatose poison.

You may occasionally feel a little uncertain as between apoplexy and dead drunkenness. We had an illustrative case the other day in our wards. A man who had been intoxicated by rum was admitted, and very profoundly comatose he was. No reflex movements were excitable; his face was cyanotic; there were gurgling râles in his throat, and I believe he might have died suffocated if I had left him in the position in which the nurse had placed him in bed, for he had a large tongue and uvula, with somewhat swollen and œdematous fauces; and as he lay on a flat bolster, with his head back, his tongue slipped back in his mouth, and nearly closed the opening of the glottis. Propping him up with a bed rest, and pulling his tongue forwards, his breathing quickly improved, and his face assumed a less blue colour. Still for some ten minutes I was unable to get any movement of either leg by tickling the soles of the feet, and the pupils were unequal, one rather smaller than the other, and both quite irresponsive to the stimulus of light. It was true he smelt of liquor, but he was quite properly admitted by the house-physician, since treatment and lapse of time alone could decide whether his coma was due to alcohol alone, or to disease *plus* alcohol. You may remember what I ordered in that case, as a piece of practice which is prompt, rational, and attended by no possible risks—the throwing up the rectum of a pint and a half of cold water, with a tablespoonful of common salt dissolved in it. It brought him out of his profound coma at once, for he asked for a night-stool almost directly afterwards. The stomach-pumping and belabouring with a galvanic battery of a comatose person, who may be the subject of gravescent apoplexy, belong to the surgery of the past, when active practice corresponded too closely with lynch-law-like punishment.

In every case of coma count the respiration, observe the quality of the breathing, and its ordinary effect upon the blood by the colour of the lips. Examine the pulse carefully for quality, frequency, regularity. Touch the eyeballs, examine the pupils for reaction to light, their condition—dilated, contracted, unequal, irregular; tickle the soles of the feet, to test what amount of reflex muscular action can be co-ordinated. The breathing in most states of coma is

heavy and slow; notice if it be stertorous, Cheyne-Stokes-like, wholly diaphragmatic, or if the intercostals act. Next take temperature in the axilla or rectum. A remarkably low temperature, four degrees or more below normal, betokens usually uræmic coma, acetonaemia, or grave concussion of the brain. After epilepsy, apoplexy, intoxication, the temperature is more often normal, or even slightly above normal.

Uræmic coma will again be separately distinguished most often by some slight œdema of eyelids or extremities, wax-like pallor, bronchitic sounds, very foul breath, smelling of beef-tea; a brown furred tongue, pearly conjunctivæ, and dilated pupils bespeak urea poisoning. Diabetic coma is indicated by oppressed noisy breathing, effected by abundant muscular effort, but attended by some lividity in evidence of impaired oxidizing changes at the pulmonary capillaries, of which we at present do not understand the exact cause.

In the coma that has succeeded an epileptic fit you may expect to find bruises, torn or dirtied clothes, indications of the tongue having been bitten.

Finally, the mode of recovering consciousness after intoxication differs much from what is observed in persons recovering from the coma that succeeds an epileptic fit. After intoxication I have noticed that while the sense of hearing is recovered soon, the lower attributes of mind, the sensorial instincts, reappear early, the individual who was comatously drunk hears correctly before he sees correctly, and sometimes before he can stand. It is curious to notice the manner in which he repeats a word of your question over and over again, like a parrot, and perceive how some grotesque idea grows out of the jingle or jangle of a phrase mumbled over more or less thickly.

How differently do the mental faculties recover after brain concussion and commotion as after epilepsy. How the intellectually reduced "egomet" is in a dreamy state and staggers in his gait, hears questions put to him correctly, answers them articulately, apparently rationally, but having done so straightway forgets what he has said, cannot tell where he is or what he is or was doing. He is conscious of some confusion in his own memory, and shows often some high measure of judgment in his distrust of himself, and says, "I cannot recollect where I was going."

Intellectual wholeness or sanity lies outside to-day's lecture, and I mention this merely as a clue to past coma, whether from drink or cerebral commotion.

It remains for me to point out the distinctive features of opium coma. There is profound stupor, with closed eyelids, contracted pupils, upturned eyeballs; the face is pale, the skin cool, clammy; the forehead beaded with heavy perspiration; the limbs are lax, but, for a while, reflex motions are readily excited. The respiration now slackens, falls in frequency, perhaps, as I have seen it do, to as low an ebb as 6 per minute, the pulse remaining fair at 80. The coma now is very profound; you may prick, stimulate by galvanism, call, flick, stimulate by what means you please, little or no further purposive response is returned by co-ordinated muscular movements. The body will not walk; it is only dragged about, if the advice given has been to walk the man about. Next the lips get livid; the surface of the body colder; the breath is sobbing, and at long irregular intervals; the pulse hardly to be felt at the wrist, and death is imminent by asthenia or sudden failure of the heart's action. Now for what may you mistake this coma, and what may be most easily confounded with it? Apoplexy into the pons Varolii, since, as was pointed out long since by Dr. Wilks, who illustrated the fact by several examples of cases that had fallen under his observation, apoplexy into the pons is attended by great contraction of the pupils.

If, then, in any case of profound coma, with extremely contracted pupils, you suspect opium to be its cause, but have no corroborative fact, no laudanum bottle,

no opium-smelling substance, or mark of subcutaneous morphia syringing upon the body, or soot of opium-smoking inside the nostril to aid you, remember that the case may still be apoplexy into the pons, a source of coma not likely to be benefited either by bastinado, beating with towels, walking about, or all the extracts of coffee which can be pumped into the body at either extremity.—*Lancet*, Dec. 4, 1880.

Hospital Notes.

Galactocoele; Incision; Cure.

Mrs. T——, aged eighteen, first came under Mr. PEARCE GOULD's care in the out-patient room of the Westminster Hospital, on August 19th, 1878. She was a robust, healthy-looking young woman, who stated that two years before she struck her right breast against a chair, and three months afterwards noticed a small lump in the breast close to the nipple. She had been married fifteen months, and was confined of her first child in February. "Just a little milk came" in the right breast, but not enough to enable her to suckle with it. There was no pain in it, but as it felt different from the other, and did not secrete milk, she sought advice.

The left breast was well developed, with a good nipple, and secreted freely. The right gland was almost the same size as the left, but was almost completely occupied by a tense, rounded, fluctuating swelling, a little involuted mammary tissue being felt at the lower part; the nipple was flattened out by the swelling; the skin was not reddened, and there was no enlargement of the axillary glands. She was seen again on Aug. 23d, when the swelling was distinctly larger and "pointing," the contained milk being visible as a white spot in the centre of a red area. A small incision, radiating from the nipple, evacuated about half a pint of creamy fluid, and the sac completely collapsed; a horsehair drain was inserted, and the breast supported by a bandage of cotton-wool. A thick, milky discharge continued to flow from the wound for several weeks, and then gradually became thinner and less, and finally ceased in March, 1879. Extract of belladonna was applied over the breast at first, and later on pressure was employed. The fluid was examined microscopically, and found to be a clear liquid containing colostrum corpuscles, oil globules, and fine granules.

Remarks.—Lacteal cysts are not common. The history and appearance of this case left no room for doubt as to its nature. These cysts have been stated to arise from dilatation of the sinuses or large ducts, or from rupture of a duct and extravasation of milk, in which case they have been found to increase "rapidly and distinctly every time the infant sucks." Here this feature was not noticed, and the history of a previous injury and inability to suckle with the breast render it probable that there was obstruction to one, or perhaps more, of the lacteal ducts. Out of seventeen cases of galactocoele recorded by Gross there had been a previous blow in two. It has been stated that such cysts never burst; this one "pointed" most distinctly, and at least threatened to burst.—*Lancet*, Nov. 27, 1880.

MONTHLY ABSTRACT.

Anatomy and Physiology.

The Cortical Centre for Movements of the Face.

In a recent issue of the *Progrès Médical*, M. BALLET records a case at La Salpêtrière confirmatory of the views of Charcot and Pitres as to the centre for the movements of the facial muscles being seated in the lower third of the parietal and ascending frontal convolutions. It is certainly very rare to meet with cases of facial paralysis arising from limited central lesions. The patient in this case was a woman seventy-one years of age, who for some time had been the subject of senile tremors. She was admitted to the hospital with well-marked left facial paralysis, but with no impairment of motility of the limbs beyond a very slight degree of weakness in the left arm. Sensibility was unaffected. During the same day there appeared conjugate deviation of the eyes to the right, and the face became more strongly drawn to this side. The following day coma supervened, the eye and head being strongly deviated to the right, and death took place three days later. Post-mortem examination showed a recent clot weighing five grammes in the cortex of the right cerebral hemisphere, occupying the lower part of the ascending frontal convolution and bounding the fissure of Sylvius. On section it was found to have destroyed the inferior frontal fasciculus, and to have encroached upon the corresponding parietal fasciculus, without, however, reaching deeply enough to involve the central gray nuclei. M. Ballet remarks that few cases hitherto published so clearly establish the seat of the psycho-motor centre of the face, the majority of such cases being those of facial paralysis associated with brachial monoplegia, with lesions extending beyond the limit assigned to the face centre. In this case, however, the hemorrhage and surrounding softening were limited almost entirely to the lower third of the ascending frontal gyrus, and had led to a facial "monoplegia" of the opposite side. The paresis of the arm, which increased slightly as the case advanced, was probably due to a slight extension of the hemorrhage, and to the pressure produced by this lesion upon the centre for the upper limb, which is in close contiguity to the facial centre.—*Lancet*, October 2, 1880.

Materia Medica and Therapeutics.

Indications of Anæsthesia by the Application of Chloroform to the Skin.

M. ALBERT HENOCQUE observes (*Gazette Hebdom.*, Nov. 10) that the Biological Society was deeply interested, at its meeting on the 13th inst., by a communication from Prof. BROWN-SÉQUARD, concerning certain profound modifications rapidly produced in the great organic functions and the properties of the nervous and muscular tissues, by the application of chloroform to the skin. The distinctness of the phenomena observed, their constancy, their absolute novelty, and the facility of their demonstration, are so many reasons for their successful reproduction in any physiological laboratory.

"Up to the present time Prof. Brown-Séquad has been able to expound the
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results of more than sixty experiments, which I have assisted him in performing. The origin of these investigations was an unexpected fact which occurred during laboratory work. In order that a guinea-pig should be killed, upon which an experiment was performed some months before, it was placed under a bell into which ether had been poured. Anaesthesia taking place too slowly, a strong dose of chloroform was poured into the tube of the bell furnished with a sponge, so that the drops fell between the shoulder and the neck of the animal, *i. e.*, the epileptogenous region. It was immediately seized with a violent attack of epilepsy—a phenomenon never before observed in this guinea-pig, although it had had some epileptic predecessors. Prof. Brown-Séquard, wishing to at once investigate this fact, poured some chloroform on the same region of another guinea-pig, with the effect of inducing not epilepsy, but profound anaesthesia, together with a series of phenomena which have been many times verified since, and the most general type of which may be summed up in the following manner:—

“If we pour chloroform rapidly on the shoulder of a guinea-pig, a reflex contraction of the platysma myoides and subjacent muscles immediately appears; the animal at first tries to escape, but in a short time its respiration diminishes, its temperature descends, it staggers, and becomes torpid. It allows itself to be placed on the side or the back without attempting to re-assume a normal attitude; and then it falls almost suddenly into a state of anaesthesia, which may last for several hours, during which sensibility may disappear absolutely—the animal remaining inert, in a state of the most complete resolution, resembling that of anæsthetic sleep. If we operate on a young cat, the result is quite striking. It is well known that this animal is difficult to anaesthetize by chloroform, and that in a few minutes after the cessation of the inspirations it wakes up during a period of agitation somewhat alarming to those exposed to the attacks of the claws of the now furious animal. We can readily understand, therefore, the natural astonishment produced at the Biological Society, where any one might handle a young cat which the local application of chloroform practised an hour previously had plunged in such a sleep that the most vigorous pinching did not elicit any movement demonstrating the existence of sensibility. This condition, resembling shock, or the state of syncope following severe injuries or profound drunkenness, persisted in this animal for several hours, there being scarcely observable, from time to time, some automatic movements of the paws, seeming to announce an approaching awakening.

“Such are the most immediately striking phenomena which the local application of chloroform produces. We may add that certain differences are observed, according to the animal employed; but the capital result—the production of the most profound resolution of general anaesthesia—is obtained in the guinea-pig, the rabbit, the cat, and the dog. This fact already in itself is of great interest; but the investigation of other phenomena has exhibited results of considerable importance in physiology, some of these being so singular, or rather so novel, that it requires that they should be seen in order to be admitted. It will be readily understood that the series of phenomena produced by the local application of chloroform offers variations, but we shall not mention these in detail, it sufficing to trace their principal features; and, as will be seen, the facts observed are already rather numerous. Thus, the guinea-pig or cat, which we have left inert on our table, begins to show signs of muscular or nervous activity in the shape of tremors of the four paws. It raises itself in a staggering manner, taking the attitude of paraplegia or hemiplegia which it had presented prior to the anaesthesia; and two cats exhibited manifest signs of delirium. The animal gradually becomes conscious and recovers its activity. Sometimes there remains a state of hyperæsthesia, which may be very considerable, the skin becoming the

seat of a more or less active state of inflammation, if the dose of chloroform was considerable, and especially if the experiment had been repeated several times. The experiment may also prove fatal. Death may either supervene suddenly, as by sideration, or it may come on more slowly after a series of very characteristic symptoms have been observed, such as convulsions, epilepsy, diminution of the reflex faculty on the side on which the application had been made, pupillary contraction in the cat, or considerable dilatation in the dog. The respiration then becomes slower, being sometimes confined to the upper portion of the thorax; the diaphragm seems paralyzed, or at all events contracts no longer on one side; and, finally, the temperature becomes lower and lower; and the animal, if it be not sacrificed by opening the thorax, dies suddenly, generally without convulsions.

"It is then that the physiologist may verify a series of ultimate manifestations which accompany or follow death, and which trench upon most important problems in the investigation of the organic functions. The animal having been opened immediately after death, or just when this seemed imminent, the predominant characters in the aspect of the organs are found to be turgescence of the vessels of the intestines, of the spleen, and of the other viscera, and the red colour of the vascular arborescences; the aorta contains blood; the two ventricles are gorged with blood, and the blood of the vena cava is of a much less black colour than in the normal condition. In a word, we here find the characteristics of death in a state of syncope. The study of the excitability of the nerves and muscles presents results which are even far more interesting for the physiologist, and which may be thus summed up: 'The excitability of the muscles and nerves of the limbs and trunk, as well as the excitability of the nerves to mechanical action and galvanic currents, are modified.' Not only is a relatively very feeble galvanic current sufficient, Prof. Brown-Séquard observes, to bring these parts into play, but we find that the persistence of this irritability after death is much greater than in healthy animals killed by opening the thorax. In the guinea-pig especially, the persistence of excitability in the sciatic and brachial nerves has been met with three or four times greater than in guinea-pigs not submitted to the action of chloroform—the excitability lasting an hour and a quarter instead of from twenty to twenty-five minutes, as is habitually observed. Phenomena of not less importance than the preceding have been discovered from observation of the galvanic excitability of the phrenic nerves and various portions of the diaphragm. To use Prof. Brown-Séquard's own words, 'In two dogs and in several guinea-pigs, after opening the thorax, the phrenic nerve of one side was found to have lost its excitability, completely in one case, and almost completely in others. The corresponding half of the diaphragm also underwent a notable diminution of irritability, which only continued the fourth or the third of the ordinary period of persistence of this property of the muscle after the thorax has been opened. It is the phrenic nerve and half of the diaphragm of the opposite side to that of the application of the chloroform that thus become inhibited and paralyzed, not only as regards their action which depends on nerve-cells, but also their property of tissue.' In other words, the phrenic nerve of the opposite side to the application of chloroform, in certain cases, presents a diminution, or even a cessation, of its galvanic irritability. Excited by strong, medium, or feeble induced currents, the phrenic nerve no longer causes the contraction of the half of the diaphragm which corresponds to it, or a comparatively very strong current is required to produce contractions. Finally, in one case, which we can never forget, the lateral half of the diaphragm, situated on the opposite side to that of the application of the chloroform, was unexcitable by the strongest galvanic current that we are in the habit of using—the muscular excitability having disappeared. Truly a singular phenomenon, since it is the first occasion in which

the loss of muscular excitability resulting from a remote irritation has been observed.

"We will not insist upon the peculiarity of this crossed action on the phrenic nerve and the diaphragm, because we are not about to put forth on this occasion a complete theory of these phenomena. Can such a theory, indeed, be advanced already? I should feel greatly disposed to answer in the affirmative, and to indicate the fundamental conclusions flowing from it, did I not fear trenching on the reserve necessary with regard to Prof. Brown-Séquard, in a matter still the subject of daily investigation, and which will shortly form the subject of his public lectures. Still, even at present, I may sum up the theoretical outlines characterizing these phenomena. We have here to do with one of the phenomena connected with inhibition; that is, the arrest of function. A remote action takes place, through the skin, on the nervous system. Such inhibition may go on to simple syncope, syncope with asphyxia, or finally to syncope with arrest of the exchanges. And, in fact, the diminution of temperature, the modifications in muscular and nervous excitability, the presence of red blood in the veins, of blood in the aorta—this condition of syncope, resembling at the same time anæsthetic sleep, the coma of drunkenness, sideration, or the state of shock, presents all the characteristics assigned by Prof. Brown-Séquard to the group of inhibitory phenomena which he has described under the name of 'arrest of the exchanges.' We shall have occasion to return to these theoretical considerations and their development. At present it suffices to have exhibited a series of facts possessing an importance of the first order. These facts can be reproduced, for their verification is easy; nothing but an animal and a bottle of chloroform being requisite for the principal features. But it is of importance to avoid a cause of error arising from the absorption of the chloroform by the lungs. Such a complication may be avoided by applying to the mouth of the animal the muzzle which is generally employed in chloroforming, but on this occasion terminating it with a caoutchouc tube sufficiently long to avoid the respiration of the vapour of the chloroform. I may add, however, that this precaution is not indispensable, for Prof. Brown-Séquard has frequently found that the respiration of the vapours of chloroform, which may take place during these experiments, does not induce any sensible modification of the symptoms. More than this, it has been observed that the injection of chloroform as an enema produced in a dog no phenomena analogous to those described, and which yet were later manifested in this same dog as a consequence of the application of chloroform to the skin."—*Med. Times and Gazette*, Nov. 27, 1880.

The Use of Martin's Elastic Bandage.

Dr. PAUL BRUNS, of Tübingen, is a warm advocate of the employment of the India-rubber bandage, and asserts unhesitatingly that Martin's method of treating ulcers of the leg is the best and most effectual that has hitherto been practised. Seventeen cases of ulcer thus treated are reported by this surgeon (*Berliner Klinische Wochenschrift*, Nos. 25, 26, 1880), in order to prove the certainty and simplicity of the method. Not only does this treatment obviate the necessity of prolonged rest and of serious neglect of work, but its duration until complete cicatrization of the ulcer seems in most cases to be shorter than that required for other methods of treatment in which the patient is kept in bed.

The employment of the rubber bandage has been found very useful by the author in the treatment of other affections of the lower extremities. Cases are referred to which show its utility in simple chronic eczema. It was found that, in cases of long-standing ulceration of the leg with eczema and infiltration and hypertrophy of the surrounding skin, the bandage acted very favourably on the

general condition, and that, as the ulcer healed, the scaly and thickened skin became smooth, clean, and soft. The application of caoutchouc in the treatment of the different forms of eczema was long ago advocated by Hebra, but it was used by this physician simply as a water-proof material, with the object of raising the temperature of the affected surface, and of macerating the epidermis by retained perspiration. Martin's bandage not only fulfils these indications, but also exerts elastic compression of the skin, an action of much importance and utility for effecting absorption of infiltration and controlling any varicose condition of the superficial veins. Dr. Bruns is of opinion that this treatment is likely to be attended with very good results in cases of obstinate and relapsing chronic eczema of the lower limb, due to disturbance of circulation and nutrition. The advantage of applying compression in cases of varicose dilatation of veins, associated with infiltration of the cellular tissue, is universally recognized, and hence the common use of elastic bandages and stockings. The use of Martin's bandage has this advantage, that the degree of compression may be readily and easily controlled, and that the rubber is a durable material. There is frequently difficulty in procuring a well-fitting stocking; and with both stockings and the ordinary elastic bandages the material is apt to lose its elasticity, and so to become useless. Dr. Bruns states that he has attained very striking results from the use of the rubber bandage in the palliative treatment of varicosity. The patient no longer complains of pain on standing or walking, and the sensation of heaviness and weariness is absent even during active labour. One case is quoted in which a good result was obtained, although on the first application of the bandage the varix was on the point of bursting. Cases have been reported by Martin and others in which a radical cure of varicose veins had been attained by the prolonged employment of the rubber bandage, but Bruns is of opinion that such a result is hardly to be expected in instances of varicosity of extreme degree.

The employment of the rubber bandage is also indicated, Dr. Bruns thinks, in cases of elephantiasis of the lower extremity. In slight forms of this affection good results have been attained through elevation of the affected limb, and firm and forcible application of flannel bandages. The thickness of the limb has thus been reduced even to the normal size, but usually relapse occurs after the patient has ceased to maintain continuously the horizontal position. A double advantage might fairly be expected from the employment of the rubber bandage. In consequence of the compression of the limb being more regular and forcible, the duration of the treatment might be shortened, and the period of necessary continuous rest in the horizontal position reduced; and, besides, the habitual wearing of the bandage might prevent the occurrence of relapses. In two cases, treated by Dr. Bruns, of chronic ulceration of the leg, associated with thickening and degeneration of the skin, of the nature of elephantiasis, this latter condition was completely removed after the application of the rubber bandage, although the patients were not confined to bed.

The rubber bandage, on account of the perfect elasticity of its material, is the most fitting of all known agents for compression in cases of joint-disease. With regard to the indications of its employment, Dr. Bruns states that he has attained excellent results from its employment in cases of articular distortion. He has applied the bandage in cases both of recent and of chronic distortion of the wrist, knee, and ankle. In recent cases the swelling caused through intracapsular effusion is kept within bounds, and in late stages absorption is accelerated by the compression of the bandage. By continuous wearing of the bandage, which serves as an effectual support to the affected joint, the utility of the limb is restored in a short time.

In two cases of hæmarthrosis recently under the care of Dr. Bruns, and treated

by the application of the rubber bandage, the extravasated blood was absorbed in a much shorter period than one might expect to suffice with the use of an ordinary bandage. In a case of fracture of the patella with hæmarthrosis, also treated by the rubber bandage, the abundant effusion of blood was absorbed within eight days. As an agent for bringing together and fixing the fragments of a broken patella, this bandage acts more effectually than strips of plaster.

Dr. Bruns has not hitherto had any experience of the use of the bandage in the treatment of acute hydrarthrosis, but he refers to cases reported by Byrne (*Lancet*, 1879, p. 645), in which striking results were attained from its employment in acute synovitis. The rubber bandage is particularly useful in cases of hydrarthrosis. The main difficulty in the treatment of this very troublesome affection consists, not in procuring absorption of the effusion, but in the extraordinary tendency to relapse, which usually occurs sooner or later after use of the affected limb. The bandage has been applied by Dr. Bruns in three cases of chronic hydrarthrosis of the knee with very promising results, and by its long-continued application the tendency to relapse seems to have been permanently obviated. In one case the effusion was absorbed in two days on forcible compression, and in the other two cases in four and six days on gradual and slight compression. The bandage in each case was then worn night and day for two months. No relapse occurred in two of these cases after an interval of four months, and in the third case after one year. In the use of the elastic bandage in cases of this kind, Dr. Bruns thinks it well to apply a weak and continuous rather than forcible compression. The application of forcible compression demands some care when the elastic bandage is used instead of a flannel bandage. The former, even when not applied very firmly, exerts through its great elasticity an equable and permanent compression, and acts with much greater effect than a firmly applied inelastic roller. Instead of reducing the intra-articular effusion through forcible compression of the joint, Dr. Martin removes the fluid by aspiration, and then applies the rubber bandage, which is worn night and day for at least six weeks. A similar treatment has been carried out with much success in cases of prepatellar hygroma.

The rubber bandage, as it can readily be cleaned and disinfected, is a better agent than the bandage made of elastic webbing for producing artificial anæmia of a limb before operation, and also for retaining in position antiseptic dressings. When applied over a gauze dressing it insures absolute occlusion, and at the same time exerts equable compression, a condition favourable, in many cases, to healing of a wound by first intention.—*London Med. Record*, October 15, 1880.

Medicine.

Hemorrhagic Diathesis, in relation to Leukæmia and Allied Conditions.

Professor MOSLER, in a contribution to the *Zeitschrift für Klinische Medic.* (Band i. Heft 2, p. 265 *et seq.*), discusses the relation of the hemorrhagic diathesis to the considerations which should guide the surgeon in undertaking operations in cases of leukæmia and allied conditions. At the beginning of his paper, he relates the history of the disease in a patient, aged 40. After this patient had suffered from various diseases, the last of which was an obstinate anomalous intermittent fever, a splenic leukæmia developed itself. It was diagnosed in 1877. The relation of the white to the red blood-corpuscles was as 1 to 5. After a long treatment, the patient (who was a medical man) desired that splenotomy

should be performed; but Dr. Mosler, as well as Dr. Péan, of Paris, dissuaded him from the operation. The patient suffered, at the same time, from old hemorrhoidal patches, and an inflammation had developed itself around the anus, without any distinct cause. When the abscess was opened, free bleeding occurred, which, notwithstanding all the means applied, lasted for several days. There was severe collapse. After an application of the thermo-cautery, the bleeding ceased on the fourth day, but recommenced subsequently to the evacuation of hard fecal masses. The patient could not be chloroformed, on account of his extreme weakness, and for the same reason, the thermo-cautery could not be applied; digital compression was employed, and pressure was made on the wound, from one to nine o'clock in the evening, a tampon of cotton, saturated with chloride of iron, being pressed on the wound. At the end of eight days more the bleeding recommenced, and was arrested after digital compression for an hour and a half. The patient recovered slowly; but four months afterwards death occurred, in consequence of retroperitoneal hemorrhage, the source of which could not be ascertained at the *post-mortem* examination.

The patient attributed his illness to the obstinate intermittent fever, as well as to excessive anxiety and mental exertion. The pains from the sternum were most important in the symptomatology of the medullary leukæmia. The severe bleeding, after slight operative proceedings, afforded evidence that account must always be taken of the hemorrhagic diathesis, in relation to leukæmia. In such circumstances, Mosler indicates solid ground for rejecting splenotomy. He relates short notices of twelve other cases, in which bleeding complicated the disorder; most frequently bleeding from the nose, but also from the stomach and bronchi. In 150 cases collected by Gowers, there were hemorrhages in 80 cases.

Mosler observes, that the operation of splenotomy can only be tolerated when there is a perfectly normal condition of the other organs; when the splenic tumour is not extensively adherent, and is of hard, firm consistence; and when hemorrhagic diathesis is absent. This diathesis shows itself, not only in the later stages, but sometimes, also, at the commencement of leukæmia, and is especially liable to complicate hypertrophy of the spleen. Mosler considers that the hemorrhagic diathesis, which always shows itself in pseudo-leukæmia, where there is no distinguishable increase of the white blood-corpuscles, depends on the poverty of the blood in functionally active red blood-corpuscles, and on the weakness and friability of the arterial walls, through deficient nutrition.—*Lond. Med. Record*, Nov. 15, 1880.

Cold Baths in Cerebral Rheumatism.

Dr. WOILLEZ has read an able paper upon this subject at the Academy of Medicine (*Union Méd.*, October 14). After adverting to the former fatality of the disease, he states that since 1870 it has become more and more evident that it may almost always be successfully treated by the application of cold, the cold bath at 20° C. (68° F.) being the form of using it which he prefers, repeating it every three hours, until the cessation of the delirium and the reappearance of the swelling of the joints. Generally the cessation of the cerebral accidents only lasts for a short time after the first immersion, but gradually increases in duration after the subsequent ones, a refreshing sleep succeeding the period of agitation. When the baths cause shivering they should be discontinued. In no instance in which they have been employed have they given rise to mischievous effects; and even when, owing to their defective application, they have not prevented death, they have prolonged life. They may be prescribed under the following conditions: 1. When to the delirium there are added diminution or disappearance of

the swelling of the joints and a temperature of 40° C. (104° F.) and above. Under this combination, the baths may be said always to succeed in procuring recovery at all periods of the disease, whether there be only delirium, coma, or imminence of death. 2. We should have recourse to them if with the delirium there is no diminution in the articular symptoms, but the hyperthermia exists. 3. The bath should be replaced by revulsives when merely delirium prevails, the articular disease pursuing its course, and no hyperthermia being present. Dr. Woillez observes that it is an error to regard the hyperthermia as the sole indication for the employment of the cold bath, the articular fluxion requiring also to be taken into consideration, since, in a certain number of cases, revulsive treatment having caused this fluxion to reappear, a cure has resulted. Although so strong an advocate for the cold bath in cerebral rheumatism, he does not regard it as opportune in all general diseases with high temperature, and especially in typhoid fever, in which he considers it as ineffectual and injurious.—*Med. Times and Gaz.*, Oct. 23, 1880.

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Recovery from Symptoms of Organic Brain Disease.

DR. HUGHLINGS JACKSON at a late meeting of the Medical Society of London (*Lancet*, Oct. 23, 1880) read a paper on a case of recovery from symptoms of organic brain disease. The case was one of supposed hysteria, double optic neuritis with nearly complete blindness, severe headache, no vomiting, loss of smell; no deafness; reeling gait; absence of patellar-tendon reflex; doubtful lightning pains. Recovery under mercurial inunction, except of anosmia and absence of patellar-tendon reflex.

The patient was a well-nourished woman, twenty-two years of age, admitted into the London Hospital on Dec. 22d, 1879. Menstruation was regular; there was no evidence of syphilis. In August, 1878, she was run over by a cart, her legs being injured above the ankles. In May, 1879, she went into service, and was quite well except for a "weakness in her legs." This "weakness" increased, and two days before admission she could not stand at all, and took to her bed. During the week before admission there was a weakness of the right arm, which would "go and come;" afterwards "pins and needles" in this limb, and then weakness of the left arm set in. Her sight began to fail two or three weeks before admission.

Symptoms of local gross organic disease: (a) double intense optic neuritis (with mere perception of light); (b) intense headache, from the misery of which she was silent and very quiet. On her recovery it was ascertained that smell was entirely wanting. She averred that she used to smell well before her illness. Dr. Jackson was doubtful whether anosmia was in her case a localizing symptom or not. It may have been owing to pressure, direct or indirect, on the olfactory bulb; or, what is quite hypothetical, to an olfactory neuritis.

Localizing symptoms: (a) absence of patellar-tendon reflex—an exceedingly important symptom, especially as her gait was abnormal, without paraplegia. The reflex was still absent when she left the hospital on March 25th. It may have been so long before she had the other symptoms, but of this nothing could be learnt. (b) Pains in limbs. At one spot a little above the left knee she had occasionally a dart of sharp pain, followed by a dull aching; it would come and go. She had no severe pain except in the head. It could not be averred that the pains were those characteristic of posterior sclerosis. (c) Reeling gait. This was noted carefully. When admitted she could scarcely walk at all, and not without help. Her gait then was not like that of locomotor ataxy. As she improved a little it could be better analyzed. It was evidently a reel—a drunken-like walk. Apparently she had good power in her legs, and, using popular

language, though inexact, there was "disorder" of coördination without "paralysis." (d) Other symptoms. There was some slight weakness of the left arm, with a slightly feeble grasp. These symptoms were very slightly marked. Some tenderness of the lower part of the spine was found. No very local tender spinal spot was revealed, either by the application of a hot or cold sponge, or by manipulation. There was no spinal curvature, no atrophy of any muscles, no defective sensation, and no vesical trouble of any kind.

Progress: rapid recovery. Iodide of potassium was at first prescribed in doses of five grains three times a day; but on January 4th mercurial inunction was ordered in addition. The dose of the iodide was smaller than that usually given in such cases. Under this mixed treatment she rapidly improved. From what was practically blindness she became able to read on January 26th No. 1 of Snellen at six inches with her left eye, but with the right only No. 3. On the day of her leaving the hospital, March 23d, she could read No. 1 very easily with her left, and with slight difficulty with her right eye. Practically her sight was quite good. She felt well, and except that the patellar-reflex was still absent, and that she could smell nothing, she was considered to be free from symptoms.

Dr. Hughlings Jackson then considered the case from several points of view. He referred to cases of recovery from symptoms induced by tumour of the brain; cases in which after little illness there was post-mortem evidence of tumour. He discussed also the question of syphilis, pointing out that a syphilitic tumour sometimes gave rise to symptoms similar to those produced by glioma or other "foreign body." He did not think that the mere fact of his patient's recovery under anti-syphilitic treatment necessarily overruled the conclusion that the intra-cranial disease was syphilitic. He spoke of the importance of the routine use of the ophthalmoscope, both as sometimes negating the diagnosis of hysteria, and also as leading to early treatment.

Dr. ALTHAUS said the great difficulties in diagnosis of brain disease could be traced to two classes of cases—viz., those in which coarse lesions, as hemorrhage, softening, abscess, atrophy, and tumours were found after death, yet no symptoms had existed during life; and others in which the gravest symptoms, pointing to severe organic changes, were observed, and the patients recovered under treatment. He alluded to hemi-anesthesia occurring from disease of the posterior part of the internal capsule, and the same affection as occurring in Charcot's hystero-epileptic women, in whom the disturbance was purely functional. He also related a case resembling in many points that described by Dr. Jackson, and in which he had made the diagnosis of tumour in the right cerebral hemisphere. In this case the administration of mercury and iodide of potassium led to recovery, although the patient had never shown any symptom of syphilis.

Dr. BROADBENT remarked upon the interest and value of the communication, the case affording Dr. Jackson an opportunity for the refinements in diagnosis which he had placed so clearly before the society. He had, no doubt, seen many instances of recovery from far more serious symptoms of organic disease of the brain, as had Dr. Broadbent and others; and in this case the symptoms formed a distinct category, indicating the seat of the disease, and no one would doubt his diagnosis of a coarse lesion in or affecting the cerebellum. Dr. Broadbent thought the course of symptoms and rapid recovery were best explained by supposing the lesion to be syphilitic, and he cited a case of a young woman, recently under his care, suffering with headache, vomiting, convulsions, double optic neuritis, and paralysis of the left third nerve. She had certainly not acquired syphilis, but there was a scar on her forehead of a suppurating node (which had not healed until she took iodide of potassium), and no doubt she was the subject of hereditary syphilis. She rapidly recovered under large doses of the

iodide; but about twelve months after was readmitted with paralysis of the right sixth and seventh nerves. He had also under treatment a case of hemiplegia in a young man, obviously due to inherited syphilis. The loss of patellar-tendon reflex was presumptive evidence of syphilis; for, as Dr. Gowers had recently stated, probably 75 per cent. of cases of locomotor ataxy were due to syphilis; and this case might be one of incipient ataxy. With regard to optic neuritis, he confirmed from many cases the fact so often insisted upon by Dr. Jackson, that this may exist without noticeable affection of sight; and in the present case he was inclined to attribute the blindness to pressure on the optic tracts or nuclei by the disease in the cerebellum. He held the view that optic "neuritis" was really ischæmia, due to strangulation of the nerve and its vessels just behind the eyeball, by effusion into its sheath; and he believed the neuritis, with numerous hemorrhages (not, of course, the ordinary albuminuric retinitis) seen in some cases of renal disease, had the same causation.

Dr. DOWSE asked whether Dr. Jackson had met with the absence of patellar-tendon reflex when no actual posterior sclerosis existed; and said that in his opinion the phenomenon might be due to inhibition.

Dr. JACKSON replied in the negative.

Lead-Paralysis.

KAST (*Centralblatt für Nervenheilkunde*, April, 1880) has made some experiments with a view of testing the accuracy of Mason's statement (*American Journal of Med. Sciences*, 1877). The latter said that the electrical reactions in frogs dipped in weak solutions of lead-salts proved the presence of degenerative atrophy in their nerves and muscles. The author's results were in direct opposition to this; in no case could he find any trace of the reaction of degeneration. Kast adds a few remarks on a case of saturnism, in which the muscles of the left thenar, though functionally almost normal, did not react to faradism directly or indirectly applied. The anodal closure contraction was obtained much more readily than the cathodal, and presented the typical sluggishness and persistence noticed in cases of degenerative atrophy.—*London Med. Record*, Oct. 15, 1880.

Neurotic Atrophy.

Professor VIRCHOW had the good fortune this summer to be able to demonstrate to the Berlin Medical Society two cases of the rare affection to which he gives the above title. Without entering into much detail, we think it may not be unprofitable just to ask attention to the principal points in each case, and to the view Virchow takes of the disease. The first case is remarkable as having been under Romberg's care more than twenty years ago, when Virchow saw it and made notes of it. It was chiefly on it that Romberg based his theory of the tropho-neuroses. The patient, a man named Schwahn, is now aged forty-two, and the onset of his disease dates from his ninth year, when he is believed to have had a severe tonsillitis accompanied with swelling and abscess in the left cervical and submaxillary region. Whether *post hoc* or *propter hoc*, the whole left side of the face has suffered more or less atrophy, especially along the course of distribution of the branches of the fifth nerve. The left side of the face is smaller than the right, the affection having begun during the time of active growth of the bones. The difference between the two halves of the under jaw is particularly marked, the chin having been pushed over to the left some way beyond the middle line by the superior growth of the right half of the jaw. The tongue is also much atrophied on the left side, but, curiously enough, only in its middle portion, and not at the root or tip. A very striking feature in the case is the

condition of the bloodvessels. While the surrounding tissues from the skin inwards are wasted and shrunken, the veins and arteries of the part appear absolutely unchanged, the larger even projecting above the surface of the skin. By stimulating the part they dilate as in a normal individual; in fact, they appear to be altogether excluded from the surrounding atrophy; and Professor Virchow expresses his opinion that any idea of the atrophy being dependent on vaso-motor influences must be entirely given up. Again, the sensibility of the part shows scarcely any deviation from the normal, nor can there be said to be any paralysis of its muscles; what remains of them contracts, but their nutrition has been terribly reduced. The most striking feature of the affection, in Virchow's eyes, is the curious and inexplicable way in which the disease leaves parts of a nerve-trunk intact, and skips as it were from one section to another. It is common to all this class of cases. He says—"This fact has a special additional interest for me, owing to the possibility of the occurrence of analogous processes also in the interior of the body, so that perhaps many changes in internal organs, which we are inclined to interpret quite differently, should be referred to similar alterations of the nerves to those met with here."

Before dismissing Schwahn's case we should say that Professor Virchow has not been able to convince himself, after comparing the patient's present state with that described in his notes taken twenty-one years ago, that any material alteration has occurred in the atrophic parts; in fact, he regards the disease as having long ago become stationary. The point is an important one, as many authors regard the affection as inevitably progressive.

The second case exhibited by Professor Virchow was that of a woman, aged forty-one, also with atrophy of the left half of the face, but without atrophy of the bones, as she was twenty-five years old when the illness which appears to have excited the atrophy occurred. She is the subject, however, not only of an atrophy involving the branches of the fifth nerve, but also of one which, commencing in some of the dorsal cutaneous nerves of the scapular region, affects the musculo-spiral nerve from its origin in the axilla, passing down the arm and forearm, and attaining its greatest development in the region of the radial nerve in the forearm and hand. The appearances are practically the same as in Schwahn's case: thinning of the skin, absolute atrophy of the subcutaneous adipose tissue, intense atrophy of the muscles without paralysis, great prominence of the bloodvessels, and no marked alteration of sensibility. The patient sometimes suffers from stabbing pains in the eye and arm, as well as from numbness in the atrophic region. She attributes the disease to an attack of what was probably erysipelas following her confinement, but it also appears that a fall on the back of the head in the street, which occurred about the same time, may have had some connection with it. Professor Virchow has seen a third case in a girl of eighteen, where the atrophy was supposed to have followed dental inflammation when she was twelve years old. In many of the recorded cases, however, no cause for the atrophy could be assigned.

As to the exact nature of the disease, of course nothing definite is known, but Virchow distinctly lays it down that the affection of the nerves is here peripheral, and not central. He believes, however, that a primary process being once set up in the nerve-trunks, owing to inflammation of the surrounding tissues, may then extend upwards to the spinal and basal cerebral ganglia. If so, the disease has a certain analogy to herpes zoster. The way in which the nerve districts are unequally attacked finds a parallel also in the various forms of lepra and in morphaea, though we are equally unable to explain it in these diseases as in Virchow's "circumscribed neurotic atrophy." "What we want," says Virchow, "to clear matters up is an adequate anatomical examination of the nerves and central or-

gans in one of these cases, so that we may know for certain what takes place. There are few phenomena in the field of nerve pathology which excite such a desire to explain them as the affection before us, and in which nature seems to perform such a test experiment for the isolation of the different kinds of fibres in the peripheral nerves."—*Med. Times and Gaz.*, Oct. 9, 1880.

An Epidemic of Hystero-Epilepsy.

A recent outbreak of nervous disturbance in Italy, which has been described in the *Annales d'Hygiène* by M. LÉON COLIN, indicates that the conditions which gave rise to some of the most remarkable epidemic phenomena of the Middle Ages are not yet extinct in the country in which they were then chiefly prevalent. On Dec. 11, 1878, the governor of the district of Tolmezzo informed the Prefect of Udine that for three months some forty females, living in the commune of Verzegnis, had been attacked by religious mania. In consequence, Drs. Franzolini and Chiap were delegated to examine the outbreak. From their report it appears that the first case was in the person of a woman named Marguerite Viduson, who had been the subject of simple hysteria for about eight years. In January, 1878, she began to suffer from convulsive attacks, accompanied by cries and lamentations. She was regarded as the subject of demoniacal possession, and on the first Sunday in May was publicly exorcised. Her affection, however, increased in severity; the attacks were more frequent and more intense, and were especially provoked by the sound of church bells, and by the sight of priests. Seven months later, three other hysterical girls became subject to "convulsive and clamorous" attacks. Here, again, an attempt was made to get rid of the supposed demon. A solemn mass was said in the presence of the sufferers, but was followed only by a fresh outbreak. At the time of the visit of the delegates eighteen were suffering, aged from sixteen to twenty-six years, except three, whose ages were respectively forty-five, fifty-five, and sixty-three years. Similar symptoms had also appeared in a young soldier on leave in the village.

During the attacks the patients talked of the demon which possessed them, stated the date on which they were seized by it, and the names of the persons who were possessed before them. Some boasted of being prophetesses and clairvoyants, and of having the gift of tongues. In proof of the latter they pronounced incomprehensible sentences, which they affirmed to be Latin or French. In all the sound of church bells caused attacks, and religious ceremonies appeared not only to aggravate the disease in the sufferers, but also to cause its extension to those not previously attacked. The reporters referred the outbreak to pre-existing hysteria, aggravated by the fanatical zeal of certain preachers, and to the frequency and exceptional impressiveness of the religious services which were being held as a means of cure. Their effect was to recall to the memory of the hysterical women the legends of demoniacal possession and of sorcery, and the exorcism of the priests deepened their conviction as to the nature of the affliction. Dr. Franzolini draws special attention to certain old establishments long of repute for the efficacy of the exorcisms practised at them. He cites especially the sanctuary of Clanzetto, an odious vestige, as he terms it, of the barbarism of the Middle Ages.

M. Colin points out that the soil was particularly favourable for the development of an epidemic of this nature. The population of Verzegnis is backward in education, and most superstitious, and functional nervous diseases are common among them. Dr. Franzolini has, however, ascertained that they possess a practical immunity from alcoholism and from pellagra, and also from diseases due to general insanitary conditions. He appears to be inclined to ascribe some share

in the production of the disease to an obscure pathological influence derived from the French race, since he notes that the inhabitants pronounce the letter "r" as it is pronounced in France, and not as in Italy—the suggested inference from this circumstance M. Léon Colin is naturally unable to discern. It appears, further, that the inhabitants of the village are a good deal cut off from intercourse with the adjacent country in consequence of comparative inaccessibility, and the frequent interruption of communications by storms and floods. Moreover, craniometric observations on twelve of the inhabitants seem to show that the brachycephalic form of skull predominates, and that the development of the cranium is slightly below the average.

M. Colin points out, with much truth, that the relative sequestration of the inhabitants of a town must tend to favour the spread of such a nervous malady, if it does not assist in its production. The reciprocal impressions of the inhabitants are little varied, and hence, in spite of differences in age and social position, the members of the community come to bear a close mutual resemblance in psychological constitution. Consanguineous marriages will be common in such a population, and will contribute to the deterioration of the masses, and to the development of any common morbid predisposition. If such a predisposition results, in one individual, in actual disease, many others are probably not far from the same morbid state, ready to undergo fuller development by imitative contagion.

The epidemic at Verzegnis has proved extremely obstinate. Since the commissioners visited the place, new cases have occurred, which have rendered energetic measures necessary—even a military occupation of the district (!)—while seventeen of the "possessed" have been compulsorily removed to the hospital at Udine. Such an epidemic constitutes a rare event in modern Europe, but it reminds us closely of some historical epidemics with which all are familiar. Even in our own day, in some backward races, as of Norway and New Caledonia, similar outbreaks have been observed.—*Lancet*, Oct. 16, 1880.

Puncture in Pleural Effusions.

GOLTDAMMER, at a recent meeting of the Berlin Medical Society (*Berl. Klin. Wochenschrift*, Nos. 19 and 20), laid before the members certain results of his rich experience at the Bethany Hospital with regard to this question. He has operated in all on 123 cases, and performed 200 punctures on them. Of these 123 cases, 19 were cases of purulent exudation, 49 cases of primary pleurisy with sero-fibrinous exudation, and 55 were cases of secondary exudation and transudation (in phthisis, pneumothorax, typhus, tuberculosis, carcinoma, and hydrothorax, and in affections of the heart and kidneys). In purulent exudations, Goldammer thus far considers incision to be indicated without exception; he makes the opening generally at the angle of the scapula, and, at the same time, performs resection of a piece of rib. For the first time, on the 18th February, shortly before his communication, he had employed the puncture with antiseptic washing out, recommended by Baltz in a case of purulent exudation, and was very well satisfied with it. The exudation did not collect again, and at the end of seven weeks, the patient recovered with the lung perfectly expanded. Goldammer divides sero-fibrinous exudation of primary idiopathic pleurisy in otherwise healthy infants, into two groups: the first includes the abundant effusions, which displace the whole contents of the thorax, the heart, and liver; in the second group, he reckons the smaller and average effusions. In the first group, in which he counts 22 of his 49 cases of sero-fibrinous exudation, puncture had the most excellent results. In several cases (8 times) one puncture

succeeded in giving direct impulse to resorption; diuresis increased, and in from nine to fourteen days the residual fluid disappeared. In seven cases, the puncture needed to be repeated. It may be considered a rule that the level of the fluid rises a few days after the puncture in the intercostal spaces; this Goldammer explains partly by the return of the displaced organs to their normal position. Puncture must not be delayed until dyspnea becomes dangerous, but must anticipate such a condition. The degree of the phenomena of displacement determines the period for puncture. Fever does not contra-indicate it; it usually disappears after a few days. The author evacuates the fluid to the extent of from $1\frac{1}{2}$ to $3\frac{1}{2}$ litres with a trocar, protected against the admission of air, and generally in the median line. In the small and median effusions, he makes the puncture with Dieulafoy's aspirator with capillary canulæ. Delay of absorption, that is to say, when, about eight days after the cessation of fever, no resorption could be ascertained—indicated puncture in 27 cases. In these cases usually from 500 to 600 cubic centimetres were evacuated, sometimes a litre. All the cases of sero-fibrinous effusion recovered, both those with abundant and those with scanty effusion. No suppurative change in the exudation occurred in any case. The cases of pleurisy treated with puncture in no case gave rise to any considerable retraction. In cases of secondary exudation, as well as of transudation, he finds an indication for puncture principally in dyspnea, and has always seen some, and often a very considerable, palliative result; and occasionally in heart disease, a considerable improvement in the primary affection. In pneumothorax, also, the removal of the fluid exudation relieves the patient. On five occasions, he found the effusion serous and not purulent. He aspirates with Dieulafoy's apparatus, puncturing in cases of slight exudation at the seventh or eighth intercostal space below the angle of the scapula, in more considerable effusions at the fifth or sixth space in the axillary line. Absolute cleanness of the instrument, of the place of puncture, etc., is to be looked after with the greatest care. Finally, he refers to the disagreeable incidents and occasional dangers of the method. Laceration of the lung by aspiration he considers to be impossible, with a little care; so soon as dragging pains occur, or the well-known paroxysms of coughing, induced by the re-admission of air to the collapsed part of the lung, the aspiration is stopped. Suppurative change of the exudation is also unknown, according to Goldammer's experience, when the operation is performed carefully. He has seen such a thing once only, in a case in which the flow of fluid through the trocar was stopped, and in which he drew out his needle to clear it, and thus introduced germs of infection (drops of oil, etc.). In cases in which this suppurative change is believed to have occurred through puncture, either there has previously existed a slightly turbid exudation, or germs have been introduced, through unclean instruments. In a correctly performed puncture, sero-fibrinous exudation is never changed to a suppurative one.—*London Med. Record*, Oct. 15, 1880.

Traumatic Hæmothorax.

The following are the general conclusions given in a recent work by Dr. CH. NÉLATON, of Paris (*Des Epanchements de Sang dans les Pleures consecutifs aux Traumatismes*, Paris, 1880): 1. Effusions of blood into the pleura result either from a lesion of the vessels of the thoracic wall, or from wounding of the intrathoracic vessels. In the latter case, the pleural hemorrhage is usually derived from the vascular divisions accompanying bronchi of the second and third order. 2. Thoracic aspiration favours the flow of blood. The bleeding is speedily arrested by the accumulation of blood in the pleura. 3. The blood effused into the chest coagulates immediately and throughout almost its whole mass, and so

becomes divided into two portions: coagulum and serosity. 4. If the effusion be not very abundant, the serosity is reabsorbed by the third or fourth day; and when the phenomena of inflammatory reaction supervene, they remain localized in the region around the clot. This irritative process serves to establish encysting of the clot. 5. If very much blood have been effused, the serosity exuded during coagulation has not time to be all absorbed before the appearance of phenomena of reaction. The serosity then becomes altered, and its presence gives rise to bad symptoms. 6. The symptoms and prognosis of traumatic hæmothorax vary in these two classes of cases. In the former, the prognosis is favourable; in the latter, it is grave. The rules of treatment are thus formulated. 1. In cases of stabbing, immediately after the injury to close the wound. This occlusion to be made either with gutta-percha tissue or with wadding and colloidion. 2. If the symptoms of dyspnœa and the fever diminish gradually, to leave the patient at perfect rest and to avoid any interference. 3. If inflammatory symptoms be suspected between the eighth and twelfth days, to treat these by blistering and local bleeding. 4. But if the oppression of breathing and the fever, instead of diminishing rapidly, remain stationary or increase in intensity, it is necessary to act at once, and to evacuate the effused fluid. The surgeon should at first make a capillary puncture; if the effusion consist simply of dark coloured serosity, this method will be found the best; it will suffice to empty the pleura, and is not so grave a procedure as that requiring a counter-opening. If, however, the effused fluid have already undergone a change, and have become purulent and fetid, it will be necessary to evacuate the effusion, as in a case of empyema, in order that by frequent injections such phenomena of putridity as are presented may be effectually dealt with.—*London Med. Record*, Oct. 15, 1880.

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Remarkable Heart-murmur Heard at a Distance from Chest-wall.

Numerous cases of heart-disease are on record in which a murmur could be heard at some distance from the chest. The following instance, reported by Dr. WILLIAM OSLER, Physician to the General Hospital, Montreal (*Med. Times and Gaz.*, Oct. 9, 1880), is remarkable from the absence of any evidence of serious cardiac disease, and from the exceedingly variable nature of the murmur:—

J. W., aged twelve, a well-nourished young girl, was sent to Dr. Osler in May last by Dr. Buller, who had noticed a remarkable whistling sound while examining her eyes. The mother states that she has been a healthy child, though never very robust. Had inflammation of the lungs at eighteen months, measles at the age of three, and scarlet fever three years ago. When stripped, and sitting quietly on a chair, the following facts are noted: Posture slightly stooping; shoulders rounded, chest long, ribs oblique, sternum short, and xiphoid cartilage tilted forward. Expansion of chest equal on both sides. Apex-beat is seen in fifth interspace in normal situation. No protrusion over heart, or irregularity in the attachment of the ribs to sternum over cardiac region. Heart's impulse is forcible, but not heaving. Area of dulness not increased.

Auscultation.—As she sits upright in the chair the heart-sounds at apex and base loud and clear; no murmur. When she stands, a loud systolic murmur is heard at apex, high-pitched, somewhat musical, of maximum intensity in fifth interspace; it varies a good deal, being loud for three or four beats, and then faint for one or two succeeding ones, due to influence of respiration. On removal of ear from the chest-wall the murmur can be distinctly heard at a distance of several inches. It disappeared quite suddenly, and could not be detected on most careful examination. She was then asked to run about the room and up

and down stairs. On sitting down after this the heart's action was very forcible, but the sounds were perfectly clear. The child then suggested that she heard it most frequently when in the stooping posture; and on causing her to lean forward and relax the chest the murmur was at once heard, and with greatly increased intensity. It was distinctly audible at a distance of three feet two inches by measurement, and could be heard at any point on the chest and on top of the head. Pulse 96.

On May 28 she was shown at the Medico-Chirurgical Society of Montreal, and most of the members heard the murmur. A day or two before the meeting Dr. Osler called at her mother's house and satisfied himself of its presence, though it was very variable.

On July 13 he saw her again at her home, and failed, after prolonged examination, to hear the murmur. She stated that she had not heard it herself for some time. There was nothing special to note about her condition, which seemed unchanged; she enjoyed good health. The stooping posture had no influence in developing the murmur as at the first examination.

July 21. Came this morning for examination. While she remained sitting, heart-sounds clear, impulse tolerably strong. When she stood up, the murmur at once became evident, presenting the same characters as before described, but not so loud, nor could it be heard at such a distance from the chest-wall. It was not much influenced by posture, though somewhat intensified when the shoulders were brought well forward. It persisted for a short time after she sat down, and then disappeared. Running up and down stairs did not cause its return, but a minute or two after it again became audible. For two or three beats it was loud, and then diminished in intensity, but there was no constancy in these variations. The rhythm is distinctly systolic; the first sound of the heart is not effaced by it, though not so sharp as in its absence. During an examination extending over twenty minutes the murmur was present four or five times, and for a brief interval only—less than a minute each time.

August 31. Saw her again, and failed to hear a murmur in any posture, after a prolonged examination. Heart-sounds clear and sharp. Has been very well. Says she has not heard the murmur for some time; does not know that there is any special time when she hears it most distinctly. Is not very short of breath after running up stairs. Heart's impulse certainly appears stronger than normal, though not heaving. Pulse 100, of good volume.

Remarks.—The points of interest in this case are, as stated above, the absence of signs of grave heart-disease, and the extreme variability of the murmur. In aortic-valve disease, particularly stenosis, it is not very uncommon to have such a loud murmur that it may be heard at a distance of several inches from the chest-wall. Dr. Osler has had two such cases under his care lately; in both the murmur was audible at about three inches from the sternum; in one of them, sent by Dr. James T. Munro, the murmur was stated to have been heard several feet off. The subject is dealt with very fully by Professor Ebstein,¹ who has collected records of numerous cases. In his exhaustive review of the literature of the subject he has only found three or four instances of such murmurs unaccompanied with serious disease of the heart or large vessels. Two of the cases are reported by Stokes:² one a weak, nervous woman, the other a chlorotic girl; in both it disappeared. The third case occurred in the person of Professor Baum, a colleague of Dr. Ebstein's, who, from 1854 to 1857, had a murmur synchronous

¹ Deutsches Archiv f. Klin. Medicin, Bd. xxii., 1878.

² Diseases of the Heart, page 154.

with the heart's impulse, which was so loud that it could be heard at a distance from the chest. It was most marked at night time. The symptom disappeared completely, and does not seem to have interfered in any way with Dr. Baum's health, as at the date of Dr. Ebstein's writing he had reached the age of seventy-eight. Dr. Baum had met with a somewhat similar case in a clergyman, in whom also it finally disappeared. The case here reported would appear to belong to this group, as there is no indication of serious disease of either the heart or vessels. The apex-beat is in the normal situation, and though the impulse is increased in force, the evidences of an hypertrophy dependent upon organic disease are very slight. If the murmur originated in a stenosed aortic orifice—the lesion in most of the cases—there would be symptoms of this condition, increased area of cardiac dulness, etc., and, moreover, it would be, in all likelihood, persistent; not, as this one, extremely variable. The remarkable way in which the murmur appears and disappears is the most singular and puzzling feature. Dr. Osler thought after the first examination that it was only developed in the relaxed condition of the chest, with the shoulders well forward and the head bent, in which position there might be slight pressure exercised by the sternum or costal cartilages on the aorta or the pulmonary artery. Subsequent examinations, however, proved this to be erroneous. Evidently the murmur is diminishing in intensity, and is not heard so constantly. Dr. Buller states that on the first occasion on which he saw her it was audible half-way across the room, at a distance of six or eight feet. She was at the time very nervous and much excited. Dr. Osler is not prepared to suggest an explanation of the cause of the murmur in this instance. It is worthy of note that in three of the five cases of this sort here mentioned the patients were women—two of them weak and anæmic; and the third (the girl under my care) delicately built and nervous, though not anæmic.

The Pathogeny of Pericarditis.

Professor ZENKER, of Erlangen, at the fifty-second annual meeting of Physicians and Naturalists at Baden-Baden, called the attention of practical physicians to a mode of origin of pericarditis, which, although no doubt it had not hitherto escaped attention, was, in his opinion, not yet recognized sufficiently often, in relation to what he believed to be its relatively great frequency. This is the causation of pericarditis, by processes of ulceration in the posterior mediastinum, whether these processes only reach the pericardium, or lead to actual perforation of it. These ulcerations are usually related to perforations of the œsophagus or bronchi, being caused either by such perforations, or the perforations in the œsophagus and bronchi, or in both, being secondary. In both cases, the communication thus set up with the external air readily gives rise to suppuration and to a further spread of the ulceration, in which the pericardium is easily involved. The pericarditis thus excited may be either fibrinous or suppurative, and also, where there is simultaneous perforation of the pericardium and of the œsophagus or bronchi combined with pneumo-pericarditis. *Post-mortem* observations have shown to Dr. Zenker the relative frequency of these processes, as well as the frequent recovery from the pericarditis thus arising. The insidious commencement and the almost entire absence of symptoms in the course of mediastinal ulcerations, as well as their obscure seat, explain the little observation which this subject has yet obtained either at the bedside or in the *post-mortem* room. Among the causes of mediastinal ulceration, perforation of diverticula of the œsophagus appears to play a prominent part. The possibility of making a more sure diagnosis of these processes, so as perhaps to act more effectively on

them by therapeutic means, does not appear to be excluded, looking to the progress in physical diagnosis which characterizes modern medicine. In any case, however, it will be possible to clear up by observation of these facts in pathological anatomy, many cases of pericarditis of which the pathogeny has hitherto remained concealed. Professor Wyss, of Zürich, laid stress on the practical importance of this communication, and remarked in a general way on the relations of the posterior mediastinum to the affections of the pericardium. He related a case of diphtheria with secondary suppurative inflammation of the mediastinum and an extension of the inflammation to the pericardium. In a second case a workman fell ill with dysphagia, which was followed after some time by pericarditis. He died with symptoms of tuberculous peritonitis. At the necropsy, there were found tuberculous peritonitis and pericarditis. The bronchial glands had undergone tubercular degeneration, and were adherent to the pericardium, which was perforated. He remarks on this, that not only fibrinous, suppurative, and septic pericarditis, but also the tubercular form of it, may take its origin from the mediastinum, especially from the bronchial glands.—*London Med. Record*, Oct. 15, 1880.

Abdominal Faradization in Ascites.

POROFF (*Vratch*, 1880, No. 22) describes a case of ascites, with enlargement of the spleen, treated by faradization of the abdominal muscles and of the spleen. He gives a table showing the effects of the treatment on the quantity of urine excreted. This rose on the first day from 1200 to 3500 cubic centimetres, and was always much greater on the days when the patient was faradized. The circumference of the abdomen steadily diminished from 95 to 80 centimetres, whilst the size of the spleen fell from 10×8 to 7×5 centimetres.—*London Med. Record*, Oct. 15, 1880.

Surgery.

Nerve-stretching.

At the last meeting of the Society of German Surgeons in Berlin (*Med.-Chir. Centralblatt*, No. 31), Dr. CREDÉ, of Dresden, showed a patient on whom he had performed stretching and division of the third branch of the trigeminal nerve by a modification of Lücke's method. He made an incision down to the posterior surface of the upper jaw. The lower jaw had to be dislocated; he then penetrated beneath the periosteum as far as the foramen ovale, seized the nerve with a blunt-hook, and isolated the middle meningeal artery. He then stretched the nerve, and cut it through at the base of the skull. There was no febrile reaction; and the neuralgia was removed.

A long discussion followed on the usefulness of nerve-stretching. Opinions were divided. Esmarch had carried out nerve-stretching seven times with good results; once he had stretched the brachial plexus in tabes with success. Trendelenberg was not so fortunate; he had employed nerve-stretching in six cases, with only one example of success. He was undecided whether nerve-stretching was indicated in tetanus or in tabes. Sonnenburg did not observe any success in tetanus. Vogt laid emphasis on the point that the nerves must be very strongly stretched, and that only the large nerves could be treated. Langenbeck reported that in the cases which he had published of nerve-stretching in tabes, relapse had

occurred; and so also in the case of intercostal neuralgia which Nussbaum, on his part, had reported.

In the *Voyenno Meditsinsky*, quoted in *New York Medical Record*, August, 1880, it is stated that Dr. A. GEN collected 73 cases of nerve-stretching used as a therapeutic measure. In traumatic neuralgia it was employed 6 times—cured 4, improved 1 (recovered entirely after neurotomy), no improvement, 1; in neuralgia from other causes, in 14 cases—cured 10, improved 3, 1 died from the hemorrhage; in clonic spasms and contractions, 6 times—cured 4, no improvement 2 (one cured by neurotomy); in peripheral epilepsy, once—cure; in tetanus, 16 times—cured 7, symptoms improved, but disease terminated fatally in 6, symptoms did not improve and patients died, 3; in anæsthetic leprosy, 30 times, in all cases with marked benefit.

As the therapeutic action of nerve-stretching is not well understood, he performed some experiments in the laboratory of Prof. Tarchanoff with a view to determine it. Some of his conclusions are as follows: Not only mild stretching, but also the use of force equal to half what is necessary to rupture the nerve, may produce an increase of its irritability and conduction. Mild stretching has no effect upon the reflex irritability, but if the force used be great, it is diminished; this effect is also observed on the opposite side, indicating the central seat of the change in its effects. Hence the operation is not limited to the peripheral parts only of the nerve, as Vogt was inclined to think. Under the microscope, he found the traces of hyperæmia and capillary hemorrhages; the axis-cylinders and myeline might be severed, but Schwann's sheath was intact. He found also peculiar constrictions in the medullary fibres. He considers that the diminution of the reflex activity is the main feature, and in the cases operated on was the condition called for.

Dr. POOLEY (*New York Medical Record*, 1880, p. 173), collects 37 cases, and adds two of his own. In the operations, as recorded in his table, the following nerves were stretched: the sciatica, sixteen times; the crural and the median, each five times; brachial plexus and ulnar, each four times; the tibial, three times; the musculo-spiral, twice; the supra-orbital, spinal accessory, facial, inferior dental, and peroneal, each once; making a total of forty-four nerves stretched in the thirty-five cases.

In all the cases of neuralgia (six of sciatica and seven of other forms) except one, the operation has been beneficial, and in most of them the cure has been complete. In the exceptional case, it seems very probable that if the nerve which was subsequently excised with success had been stretched in the first instance, instead of the sciatic, the result would have been favourable. The special form of neuralgia known as sciatica has yielded excellent results from nerve-stretching, which may now be regarded as a thoroughly recognized procedure in obstinate cases. Professional opinion seems to be steadily advancing in favour of the operation in other forms of neuralgia. Especially in the traumatic variety is it likely to prove useful, as here there are more generally found adhesions of the nerve to surrounding tissues which stretching may break up. In such cases it has been found not only to cure the pain, but also the wasting shiny skin, and other trophic disturbances associated therewith.

The success of nerve-stretching is little less marked in local convulsive affections than in pure neuralgia. It is in this class of cases that the most extensive operations have been resorted to—stretching of several nerves, and on both sides of the body—but no ill consequences have resulted to diminish the value of the result.

In the twelve cases of traumatic tetanus for which the operation was done, seven of the patients died, four recovered, and in one the result is not stated.

There can be no doubt that, as the matter at present stands, a physician would be culpable who trusted to nerve-stretching alone in this disease, and it may be doubted whether the cases where it has been done as an adjuvant to other treatment show any better average results than from the treatment by chloral-hydrate and (?) Calabar bean.—*London Med. Record*, Oct. 15, 1880.

On the Detection of the Presence and Location of Steel and Iron Foreign Bodies in the Eye by the Indication of a Magnetic Needle.

Dr. THOMAS R. POOLEY, of New York, in an interesting paper on this subject (*Archives of Ophthalmology*, Sept. 1880) based upon a series of experiments, deduces the following conclusions.

1st. The presence of a steel or iron foreign body in the eye, when of considerable size and situated near the surface, may be determined by testing for it with a suspended magnet.

2d. The presence and position of such a foreign body may most surely be made out by rendering it a magnet by induction, and then testing for it by a minute suspended magnet.

3d. The probable depth of the inclosed foreign body may be inferred by the intensity of the action of the needle near the surface.

4th. Any change from the primary position of the foreign body may be ascertained by carefully noting the changes indicated by the deflection of the needle.

Scarlet Fever as a Cause of Ear-Disease.

The above subject is treated by Dr. BURCKHARDT-MERIAN, Professor at Basle, in an able lecture¹ in Volkmann's *Sammlung Klin. Vorträge*, No. 182. It is one which deserves the attention of our profession, owing to the frequency with which scarlet fever attacks the auditory apparatus, and the disastrous results which too often follow neglect of proper treatment in the early days of the affection of the ear. Of 1950 aural cases of his own, Dr. Merian found that 85, or 4.35 per cent., were due to scarlet fever. Yearsley found 4.77 per cent. of his cases dependent on the same cause. In 18 of Merian's 85 cases—that is, in 21.17 per cent.—the hearing was totally lost in one or both ears, and three of these patients were deaf-mutes. The statistics of deaf-and-dumb institutions speak strongly as to the causation of deaf-mutism by scarlet fever; Dr. Merian tabulates 4309 cases of acquired deaf-mutism, of which 445, or 10.32 per cent., followed that disease. These facts will suffice to impress the importance of this subject on our readers.

There has been a good deal of discussion as to the way in which the middle ear first becomes involved during scarlet fever. Dr. Merian believes that the inflammation of the fauces extends upwards through the Eustachian tube or tubes, and that the cases where perforation of the tympanum afterwards occurs are those in which this inflammatory process is of a diphtheritic nature, diphtheritic patches being present at the same time, though often overlooked, on the soft palate and in the pharynx. There are no doubt a number of mild affections of the middle ear, which have nothing to do with diphtheria, but depend on the extension of a chronic congestion of the pharynx to the mucous membrane of the tympanic cavity; but these often rapidly subside without permanent injury to the ear. With the diphtheritic form it is far otherwise. Dr. Merian thus describes its symptoms. In the majority of the cases they first appear in the stage of desquamation; there is often a rigor and always a fever, which remits in the morning, and may rise to

¹ Ueber den Scharlach in seinen Beziehungen zum Gehörorgan.

39.5° Cent. (102° Fahr.), seldom higher, at night. Severe earache is complained of, which may be replaced in a few hours, especially if spontaneous rupture of the tympanum takes place, by pains of a true neuralgic character involving the second and third branches of the fifth nerve. More or less complete deafness is the rule, and may come on very rapidly. The anterior and posterior auricular lymphatic glands, as well as the submaxillary and cervical glands, almost always enlarge, and their enlargement may precede all other symptoms of the middle ear. Sometimes the mastoid process is painful on pressure, and especially on percussion, without any consecutive inflammation happening. All these symptoms, with perhaps the single exception of the glandular swelling, may also occur in an acute inflammation of the middle ear not due to scarlet fever; but there is one symptom peculiar to the otitis media of scarlet fever, or at any rate only met with in connection with it and with diphtheria, namely, the rapidity with which the tympanic membrane becomes destroyed in whole or in part. In ordinary inflammation this generally takes years; in the otitis of scarlet fever and diphtheria, only a few weeks. How common the destruction of the membrane after scarlet fever is, the following statement will show. Dr. Merian found in his 85 cases that 13 had had one ear and 72 both ears attacked. The total number of ears involved in these 85 cases was, therefore, $72 \times 2 + 13 = 157$, and of these 54, or 34.34 per cent., had completely lost the membrana tympani. When we reflect further on the other consequences of the otitis media—the chronic profuse suppuration after perforation of the membrane, the loss of the auditory ossicles, the formation of polypi, and in the worst cases erosion of the carotid artery and of the transverse sinus at an early period, or cerebral abscess at a late period—the importance of early and appropriate treatment is sufficiently evident.

This treatment is not only to be curative, but prophylactic. Dr. Merian holds that the best preventive of aural mischief in scarlet fever is the arrest of the primary diphtheritic process in the pharynx. He therefore cauterizes all patches that can be discovered, at first twice, and afterwards once a day, with a 10 per cent. alcoholic solution of salicylic acid. A piece of cotton-wool of the required size is wound round the end of a small knitting-needle on which a double screw is cut, and the wool, soaked in the liquid, is gently pressed on the part. Some pain is caused, but it does not last long. Nausea is best combated by ice, and the taste of the spirit can be concealed by adding 1 or 2 per cent. of oil of wintergreen to it. For the back of the soft palate and for the pharynx curved instruments are, of course, required.

The second preventive measure is the use of the nasal douche once a day where the patient is intelligent enough to bear it. Following Trütsch (*Archiv für Ohrenheilk.*, Bd. ix. S. 191), Dr. Merian provides a printed form of directions for its proper manipulation. The apparatus consists of an Esmarch's irrigator, with a tube two feet long, furnished with a glass nose-piece. A litre of warm water, in which seven grammes and half of common salt have been dissolved, is the liquid employed at first. Without the salt the water irritates the nares. Later on, one or two tablespoonfuls of salicylated spirit are added to each litre. It is very important that the douche be slowly administered, the patient breathing quietly with open mouth, and not speaking or swallowing. The irrigator must not be raised more than one foot above the level of the head, else water may easily enter the Eustachian tube and penetrate the ear, giving rise not only to pain, but possibly to tedious inflammation. Our space will not allow us to reproduce Dr. Merian's instructions more fully. Besides the douche he recommends gargling every two or three hours with a dessertspoonful of salicylated spirit in a small glass of water, and the application of an ice bag to the front of the neck from one mastoid pro-

cess to the other. Pieces of ice are also allowed to dissolve in the mouth, but the patient is told to spit out the water formed from it. Very small children are excited to sneeze, and so temporarily clear their nares, by a snuff of pure salicylic acid, which for infants may be diluted with equal parts of starch-powder. Before leaving the subject of prophylaxis, Dr. Merian mentions that it has seemed to him that consecutive ear-affections have been most often met with in cases of scarlet fever treated by cold baths or the cold "pack," both of which tend to cause congestion of the head.

In treating the acute stage of the otitis itself he uses ice externally, protecting the very sensitive lobe of the ear from the cold by flannel or a piece of wadding. The pain is relieved by iodine paint, or by iodoform ointment (iodoform, ol. fœniculi, $\overline{\text{aa}}$ 1.0 gramme, vaseline 8.0) covered with gutta-percha tissue, and over it the ice-bag. Very severe pain yields to equal parts tinct. opii and water, ten to twenty drops being poured into the meatus. The intermittent pains occurring towards evening or by night, and which are very depressing to the patient, require quinine (0.20 to 0.50 gramme) internally.

As soon as the acute stage is over, air should be blown into the tympanic cavity with a Politzer's bag, to restore the equilibrium of the internal air with the external atmosphere, and allow the membrane, which has yielded to external pressure, to recover its position. If, however, in spite of these measures, the fever continues, the mastoid process is tender, and dull pain is felt over the whole head, paracentesis of the tympanum is indicated. The opening made should not be too small, and there is generally rapid relief after the operation. The escape of secretion from the middle ear should be aided by Politzer's bag. Syringing should be avoided the first day, and wadding, frequently changed, alone used to soak up the discharge. The patient is ordered to lie on the side of the affected ear; and if, as often happens, great improvement follows the puncture, iodine and ice alone suffice for the cure. If, however, the discharge is copious and with difficulty checked, the ear is syringed with a 5 per cent. solution of sodic sulphate, which Dr. Merian has long preferred to all others for this purpose (see *Correspondenz-Blatt für schweizer Aerzte*, 1874, S. 566). The wadding he uses is boracic. The very destructive diphtheritic forms of otitis media require the membranes, which often fill the whole osseous meatus and obscure the tympanum, to be scraped away energetically with a curette or removed by a "Wilde's snare," and the parts to be daubed with salicylated spirit, or dusted with pure salicylic acid; the ear must also be syringed several times daily with diluted salicylated spirit (one to two dessertspoonfuls to 100.0 grammes water). These proceedings are rather painful, but generally wonderfully efficacious. Profuse suppuration in these latter cases without fever is best treated by thorough syringing twice a day either with diluted salicylated spirit, carbolic acid (acid. carbol., sp. vini, $\overline{\text{aa}}$, one dessertspoonful to 100.0 grammes water), or boracic acid (one to two dessertspoonfuls to water Oss.) By the adoption of these measures at the outset, Dr. Merian is convinced that the number of cases of chronic ear-disease after scarlet fever will be much reduced, as well as the danger to hearing and to life which is its too frequent consequence.—*Med. Times and Gaz.*, Oct. 30, 1880.

Nephro-Lithotomy.

Mr. HENRY MORRIS, at a late meeting of the Clinical Society of London (*British Med. Journal*, Oct. 30, 1880) read a paper on this subject, with notes of a case in which the operation was successful. By the term "nephro-lithotomy" was meant the removal through a lumbar incision of a renal calculus from a kidney in which the pelvis was not dilated, and which, but for the presence of

the stone, was presumably healthy. It was to be distinguished from the numerous cases in which the kidney was cut for the evacuation of fluid accumulated within it, whether as the result of a renal calculus, of tuberculous disease, or some other cause, and to which, from very ancient times, the name "nephrotomy" had been applied; as well as from those cases, also numerous, in which a stone had been removed after it had been detected through a sinus in the loin. The opinion of writers upon the subject had been universally adverse to the attempt to remove a stone from the kidney, unless it could be reached through a distended pelvis—the chief reason urged being danger of fatal hemorrhage if the existing substance of the organ were cut or torn. The case described in the paper conclusively proved the feasibility of the operation; and, in answer to the question—Was nephro-lithotomy feasible, and, if feasible, was it safe? the author stated "that it was entirely due to his friend and colleague, Dr. Coupland, who advised the patient to undergo the operation, that an affirmative answer could now, for the first time in the history of surgery, be given with certainty to the question." The position of the question before this case occurred was reviewed; Marchetti's operation on the English Consul Hobson was referred to, and six cases in which the operation was planned, but in which it proved abortive, were mentioned. These six cases were considered encouraging, because all the patients recovered from the operation of exposing the kidney, and, curiously enough, obtained, at least for a time, relief from their symptoms.

CASE.—Maria M., aged 19, a servant-girl, of short stout stature, and with a remarkably rough scaly skin, had for eight years been subject at times to pain in her right side, accompanied occasionally with a feeling of sickness, and even actual vomiting. In September, 1878, these symptoms became more pronounced; her urine became dark-coloured, and the pains so severe that she had to give up her situation and go under medical treatment. In April, 1879, she was admitted, under Dr. Thompson, into the Middlesex Hospital, and, after treatment and rest, so far improved that she went again into service. A life of activity, however, brought back the old symptoms, and she was readmitted (this time under Dr. Greenhow) into the hospital. In less than a month she was again able to go out, but only to return a third time, with urine as dark as porter, and with the pains in the right loin and groin as severe as ever. When she was admitted, under Dr. Coupland, on December 29th, 1879, her urine was acid, and contained no other abnormal constituents than blood; there was some tenderness, but no swelling in the right loin. Again the urine cleared up, but the nephralgia was not relieved; consequently, on February 11th, chloroform was administered, and the right kidney exposed through an oblique lumbar incision. The right index-finger was then passed over the posterior surface of the kidney, and at once detected something faintly projecting over the renal substance near the hilus. The renal substance was incised at this spot with a probe-ended bistoury, and a mulberry calculus, of triangular shape, and weighing thirty-one grains, was extracted by means of a scooping movement of the finger-tip. There was no hemorrhage at any stage of the operation. The upper end of the ureter was not dilated in the least, and, as the stone could not be felt there, it was consequently not interfered with. No attempt was made to examine the front surface of the kidney. The wound was brought together with three sutures, and a drainage-tube was introduced between two of them. The patient made a good recovery; urine ceased to flow through the wound on May 4th, and at the present time there was nothing whatever the matter with the patient, excepting that a sinus of one and three-quarter inches still remained in the loin, and discharged about a drachm of pus daily.

This case showed that a calculus could be extracted from an *undilated kidney*

by surgical operation, without more risk than was amply warranted by the sufferings and general disability which the operation was designed to remove. But before the success of one case was allowed to influence treatment in others, four questions required consideration. 1. Could the diagnosis as to the disease, and the organ affected, be made with certainty? 2. What were the prospects of being able to complete the operation when a stone was found? 3. What were the dangers of the operation? 4. What was the best result which could be hoped for from the operation if successful? Mr. Morris, in answering each of these questions, gave arguments in favour of nephro-lithotomy; and finally expressed his agreement with Mr. Charles Bernard, the author of an account of Marchetti's operation, described in the *Philosophical Transactions* of 1696, that many of the writers upon the subject of wounds of the kidney "ought not to have so magisterially exploded the operation;" and hoped the operation would once again receive the consideration of the profession.

Mr. LUCAS said he had been looking for such a case, but had not found one. The experience gained, however, when the whole kidney was removed, was likewise available in such instances. Cutting down upon the kidney was, comparatively speaking, a trifling operation, though the risk of leaving a permanent sinus was considerable.

Mr. GOLDING-BIRD had operated on one case, but had failed to find a stone. The boy suffered from intense pain in the bladder and about the kidney. The organ was cut down upon, and nothing found, but the pain was relieved. The pain returned, and the bladder opened, but nothing found. The end of the case was unfortunately unknown.

Mr. BARKER said that a case had been reported, where a canula had been thrust down through a small opening and struck the stone; this canula had been allowed to remain in, and the wound afterwards dilated by tents until a lithotrite could be introduced, and the stone crushed and removed. He had recently had a case where a large branched calculus filled the cavity of the kidney. He was able to remove a part, but not the whole. He then endeavoured to remove the whole kidney. The patient died of shock.

Mr. BRYANT said he would support Mr. Morris's view as to the operation in his case, though it was a dangerous one. Granting the presence of a stone, and a persistence of symptoms refusing all amelioration, the surgeon was justified in operating. Still, there were many cases where the stone would settle down in the kidney, and the patient survive many years, dying finally of something else. As regarded diagnosis, it was quite true that the stone might be struck by a needle thrust down upon it, but it was a question how far this plan should be tried. He suspected that the evil would exceed the good done.

Spasmodic Stricture.

Prof. ZEISSL publishes in the *Allg. Wien. Med. Zeit.* (Nos. 23 and 24) the portion of his forthcoming report on his division of the Vienna General Hospital, which relates to spasmodic stricture of the urethra. After adverting to the difference of opinion which has prevailed upon the reality of its existence from the time of Hunter, who first described it, and finding that this is still denied by some observers, he thinks it incumbent upon him to state what has so frequently come under his own notice.

Every one, he observes, knows how sensitive the bladder and urethra are to external influences, whether these are of a thermic or a mechanical kind, and the action of psychical influences on their functions is no less remarkable. Many men, even with a well-filled bladder, are not able to empty it while talking or

laughing; and the case of a young man is cited, who during a railway journey was unable to pass water, although the train stopped at several stations for five or ten minutes, because he was always in fear that it would go off without him. When this fear had ceased to operate at the end of the journey, he at once emptied his highly distended bladder. As to the etiology of spasmodic stricture, even a slight chemical change in the urine may induce it. A catarrhal condition of the urethra, excessive coitus, hard riding, taking imperfectly fermented drinks, and especially organic stricture of the urethra, may also induce the spasm and give rise to retention of urine. This is not infrequently met with during gonorrhoea. Patients suffering from this often drink large quantities of liquids containing free carbonic acid, and become the subjects either of catarrh of the neck of the bladder with very frequent passage of urine, or of retention of urine. When called to such cases, we find them with the most anxious expression of countenance, the brow covered with cold sweat, and the bladder distended so as to reach the umbilicus, no urine being discharged in spite of the strongest efforts. A catheter of the largest size corresponding to the diameter of the urethra can, with a little patience on the part of the surgeon, be passed in with ease. It has frequently happened to Prof. Zeissl to find that the passage of a large bougie or sound for the treatment of chronic gonorrhoea has been impossible in individuals, on the first occasion of this treatment being adopted; but after the instrument has remained at the obstructing part (usually the membranous portion) for some minutes, and often for a quarter of an hour, it slips in of itself. After the patient has become aware of the painlessness of the procedure, and ceases to have any fear, the instrument, on the very next occasion, can usually be passed with ease. These facts show that the action of the muscular structure of the urethra may prevent the entrance of a bougie or the discharge of urine. These urethral spasms are of frequent occurrence, and are found in persons who are suffering from organic stricture. They are not confined to any definite part of the urethra, but may affect any part of it. These spasmodic strictures are often a serious hindrance to the treatment of organic stricture, the spasm being induced by the introduction of an instrument. Not only is the introduction of an instrument opposed by the spasmodic action, which, however, may be overcome with patience, but its withdrawal is delayed by the same cause, often for a very long time, which is a great inconvenience in private practice.

After relating some cases in exemplification, Prof. Zeissl observes that a series of similar facts have convinced him that the muscular structure of the urethra may exhibit spasmodic action, and that the consequences of this diseased contraction may, (1) in rare cases, induce retention of the urine, the spasm then attacking the muscular structure surrounding the membranous portion—the musculus transversus perinei profundus; (2) it very frequently prevents the introduction of an instrument for some minutes; (3) it may become so severe in any part of the urethra that for a time it may render the withdrawal of an instrument impossible; (4) it may give rise to prostatic discharges and frequent pollutions. In reference to this last point, he observes that sometimes patients present themselves complaining of very frequent pollutions. They perceive a kind of fullness of the penis, as if it were filled with fluid from before backwards, and this is accompanied by a sensation of contraction in the glans. When these sensations cease, a small quantity of grayish-white fluid, containing filaments, flows from the urethra. There is no obstruction to the flow of urine, but a few seconds after this has ceased, some additional drops are discharged. This last symptom would seem to indicate hypertrophy of the prostate, but as most of these patients are about twenty years old only, it cannot arise from that; and, in fact, the passage of a sound and examination of the rectum prove that no such hypertrophy

exists. The endoscope exhibits no abnormality of the urethral mucous membrane, nor is there hyperæmia or tumefaction of the vera montanum. The symptoms are, however, easily explained if we attend to what takes place when a sound is passed. It will be found that a well-oiled instrument can only be carried forward irregularly and by starts, being sometimes arrested at certain points, and if held with a light hand it may be turned round on its axis. There is, in fact, throughout the whole course of the urethra, but especially at the prostatic portion and the anterior part of the canal, a spasmodic condition. We know, from the researches of Brücke and Svetlin, that the greater part of the prostate consists of muscular substance surrounding the tubular glands. This muscular substance contracts spasmodically, and forces the secretions of the gland into the urethra, filling the prostatic and membranous portions first; and as soon as the prostatic secretion arrives in the urethra, the muscular structure of this is spasmodically affected, especially at the anterior portion, so as to impede its exit and induce the sensation as if the urethra were filled with fluid. After some minutes the spasm ceases, and the retained prostatic secretion flows from the urethra. On examination of the fluid thus expelled, no spermatozoa are found. The discharge of some drops of urine a few minutes after the flow has ceased is explained as follows: The greater part of this fluid is discharged on the contraction of the bladder, but as it flows through the urethra it induces muscular contraction, and when this becomes stronger than that of the detrusor the discharge of urine is arrested for some minutes until the spasmodic action has subsided. With respect to the occurrence of the pollutions, we know that under sexual excitement the secretion of the prostate is quickly discharged; and when its muscular substance contracts spasmodically in sleep and discharges its secretion, the patient becomes the subject of lascivious dreams, and seminal emissions ensue. This form of spasmodic stricture is especially observed in spinal disease or as a forerunner of this; but it may also occur in individuals whose central nervous system is in a completely healthy condition.

With regard to the treatment of this disagreeable affection, which also in its last-named form may prove injurious to the entire system, we should first forbid all drinks which exert an irritating effect upon the bladder, especially champagne, cider, new wine, and beer. The most important point is the daily introduction of a moderately large instrument into the urethra, and leaving it there for only a few minutes. It is also very serviceable, when the spasmodic action of the urethra affects a person who is the subject of an organic stricture, to order for him, an hour before the introduction of the instrument, either a morphia or belladonna suppository or a small dose of morphia. At the end of an hour an amount of narcotism is often induced, under which a urethra that before was impassable admits with ease a large instrument. The belladonna suppository is preferable to the morphia, because while, like it, it counteracts the spasmodic action, it does not induce constipation. The patient should also keep as quiet as possible in a room of equable temperature, make warm applications to the perineum, and use a warm sitz-bath twice a day.

"The exact recognition of spasmodic stricture is, in my opinion, of the greatest importance, because every one who is aware of its existence, when he meets with an obstruction while examining a urethra, will not endeavour to overcome this with force, but will allow the instrument to remain quietly for some seconds at the obstructing point, which he will soon be able to glide over with ease if the obstruction is induced by spasm. These spasmodic strictures explain the frequency with which false passages are made, by imprudent exploration, in urethras which exhibit no organic strictures."—*Med. Times and Gazette*, Oct. 23, 1880.

Oseous Ankylosis of the Knee operated on by Barton's Method.

Mr. M. H. KILGARRIFF relates the following case in the *Dublin Journal of the Medical Sciences* for March, 1880. M. H., aged 30, the subject of faulty bony ankylosis of the knee, was admitted into Jervis Street Hospital on the 4th September, 1877. On examination, the leg was found to be bent at a right angle, the knee immovable, the anterior and lateral aspects being rough and irregular, and covered with a thin slate-coloured cicatrix. On the 16th September, assisted by his colleagues, Mr. Kilgarriff operated. Ether having been administered, he cut on the lower portion of the thigh a triangular flap, with the base on the outside, exposing the femur. He then passed carefully under the bone a curved metallic spatula, and with a saw removed a wedge-shaped piece of bone which had its base in front, and measured vertically three-quarters of an inch. He then straightened the limb without difficulty, and placed it in a splint, the outside piece of which reached the axilla while the inner part fell short of the groin; the lower portion was a box, and joined the thigh part at a very obtuse angle. The dressing consisted of lint steeped in carbolized oil, and a solution of permanganate of potash was used to wash the site of operation. The wound suppurated for a few weeks, then closed in, and the divided surfaces of the bone were early united by a firm osseous band. In somewhat less than three months the patient was able to lean on the leg, and, aided by crutches, could without difficulty walk about the ward. The operation differed from Barton's in two particulars, which Mr. Kilgarriff regards as an advantage, viz., cutting through the bone, which left no spicula to pierce the fascia behind, and having the base of flap at the outside averted the possibility of bagging of matter, and made the wound more accessible for dressing. In Barton's method the bone posteriorly was uncut, and the flap was on the inside. In the above case there was no shortening, and the patient could walk well and discharge her duties as a servant.—*London Med. Record*, Oct. 15, 1880.

Case of Resection of the Patella.

In a recent contribution from Dr. E. ALBERT, of Innsbruck, to the literature of practical surgery (*Beiträge zur Operativen Chirurgie*, 1880), a report is given which, though referring to an operation performed nearly three years ago, may now be regarded as one of particular interest in its relation to the views that have since been published by Volkmann, as to the pathology of articular white swelling. Volkmann has reported (*Sammlung Klinischer Vorträge*) cases of coxitis, due to osteomyelitis of the head and neck of the femur, in which, after having chipped away the outer wall of the great trochanter, he removed an inflammatory deposit from the interior of the bone. Osteomyelitic deposits were also removed in like manner from the articular extremities of other bones, and the neighbouring joint, in each case, was laid open and drained. In his comments on these cases, Volkmann endeavours to show that the destructive articular disease known as white swelling has its primary origin, not in any pathological change in the synovial membrane, but in deposit, usually tubercular, in the medullary portion of an adjacent bone. It is suggested that the destruction or removal of such deposit should be attempted when practicable, notwithstanding the unfavourable experience of surgeons as to caries of bone, and the frequent occurrence of death soon after recovery from resection of a diseased joint.

The case recorded by Albert is one of well-marked fungoid disease of the knee, which evidently had its origin in caries of the patella. According to Volkmann, the internal condyle of the femur is most frequently the seat of tubercular deposit, which may give rise to an infection of the knee-joint and articular white swelling. As the upper surface only of the tibia is included within the synovial sac,

a tubercular deposit here usually finds an extra-articular outlet, and so the joint is saved. In some cases the tubercular deposit exists, as in Albert's case, in the patella. Every surgeon of much experience must, it is stated, have observed an instance of a sinus over the anterior surface of the patella leading down to bare and carious bone. The joint, in such case, is usually swollen, and sooner or later destructive disease of the whole joint is developed. A case of this kind would seem to be one well adapted for the treatment suggested by Volkmann, since the tubercular deposit is very accessible, and, if allowed to remain, is likely to extend speedily in the direction of the joint.

The subject of Dr. Albert's case was a woman, aged thirty, who in childhood had been affected with keratitis and swelling of the cervical glands. In the autumn of 1876, destructive articular disease had commenced in the right ankle, and in the spring of the following year an abscess had formed over the patella of the same limb. The patient, when first seen by Dr. Albert in September, was suffering from extensive carious disease of the ankle, and presented a small fistulous orifice in front of the knee, through which a probe could be passed down to bare bone in the patella. After amputation through the leg in November, there was a considerable increase in the amount of discharge from this opening, and the knee enlarged and became very painful. As the affection of the joint was progressive, and the symptoms were those of fungoid thickening of the synovial capsule; and as the patella was evidently the starting-point of the mischief, it was decided in January, 1878, to remove the diseased portion, or, if necessary, the whole of this bone. A vertical incision having been made in front of the joint and through the fistulous orifice, the patella was exposed, and its inner half, the structure of which was bloodless, soft, and eroded, was removed by means of a chisel; the outer half, as the structure seemed to be healthy, was left *in situ*. The cartilage of the patella remained, but was reduced in thickness and marked by streaks of yellow deposit. The joint contained about three ounces and a half of turbid fluid; and the whole of the synovial sac was found to have been converted into a thick fungous mass. The articular cartilages of the long bones were smooth and white, and all the ligaments were intact. An incision was made into the joint on each side, and a drainage-tube passed through the articular cavity, which was finally cleansed by the injection of a five per cent. solution of carbolic acid. Profuse suppuration commenced in the joint very soon after the date of the operation, and the patient died two months later in a state of extreme anæmia, after breaking down of the left lung and rapid development of general tuberculosis.—*London Med. Record*, Nov. 15, 1880.

Excision of the Cuboid Bone.

The excision of the cuboid bone in confirmed and inveterate club-foot, advocated by Mr. DAVY, has been recently practised successfully by Poinset in a case which he related to the Society of Surgery on the 28th July. This was a case of left talipes varo-equinus in a young girl, on whom an operation was performed, at the age of eight months. The foot was placed in a suitable apparatus; this, however, having been broken some time afterwards, was not replaced, and the deformity was reproduced. Subsequently, at the age of twelve years, a subcutaneous section of the tendons, which kept the foot in its abnormal condition, was performed; but this operation not having succeeded in removing the deformity, M. Poinset decided on performing the extraction of the cuboid bone; the foot was then placed on a gutter. As the result of this operation, which was performed under antiseptic precautions, complete cure was obtained; some months later, walking was easy, and the foot in a good position.—*British Med. Journal*, Oct. 30, 1880.

Midwifery and Gynæcology.

On the Treatment of Puerperal Fevers.

Dr. J. MATTHEWS DUNCAN recently delivered a lengthy address upon this topic before the Midland Medical Society at Birmingham, for the reproduction of which, in view of the importance of the subject, and the well-known ability of the author, no apology is necessary.

Dr. Duncan said: Although only a few years ago it was far otherwise, the remark may now pass unchallenged, that there is no such disease as "puerperal fever," whose treatment is yet my subject for this evening. That name has been for a century in constant use, and indicates, though with deplorable lack of precision, a group of diseases for whose designation it may meantime be, for convenience sake, retained. Whatever designation we may adopt, we experience no difficulty in recognizing the diseases meant, and there is no hesitation in ascribing to them the highest place in importance to lying-in women who suffer and die, as well as to medical men who observe and treat. Their baneful influences, including their mortality, exceed those of any other group of diseases of childbed. It is truly said that childbearing proves fatal to every hundredth mother, and it may be added that, of this fatality, the far greater part is due to these diseases. How enthusiastic does the study of them become when we contemplate the reduplicated danger of mothers who have just borne a first child; how grave and awful when we regard the rapidly-increasing perils of mothers who count their children by numbers that rise higher and higher into the physiologically excessive.

It is misleading to estimate the importance of puerperal fever by death alone. The habit of doing so is easily accounted for. Mortality is a result, plainly and infallibly ascertained and numbered. The modern science of statistics, and the connected statistical arguments deal almost exclusively with death. In most writings it is implied that escape from early death is recovery—an error which it is only necessary to mention in order to insure its recognition. Death is a simple result, final, unconditioned pathologically—an end, to which various pathological routes may guide. So-called recovery is not its antithesis in practice, whatever it may be in theory. In many cases so-called recovery is anything rather than restoration to health; it is merely an escape, more or less narrow, from early death. The escape is generally into paths which lead to health ultimately; often it is into paths which lead to death more or less directly, more or less slowly, and after a lapse of months or even years. Recovery as antithetic to death is a very indefinite matter. Puerperal fever ends in death or in survival of the immediate attack. Such survival may be in good health or in wrecked health, or it may be in grave and progressive disease.

A good deal of undesirable mystery and much of positive error has been propagated on this subject by the long-continued and still persistent practice—a mere practice, now, without any rational basis—of regarding puerperal fever as occurring chiefly in epidemics. In its prevalence it has a seasonal variation, which Buchan and Mitchell have traced, and which closely resembles that of erysipelas; but it has no periods of epidemic raging; or, rather, none have been demonstrated. Individual epidemics of cholera, smallpox, scarlet fever, measles, and other diseases, have been well described; cycles of epidemics of these diseases have been pretty well traced, but no such demonstration or tracing has been made in the case of puerperal fever. Histories of many so-called epidemics have been written, but their descriptions fail to prove the reality of their epidemic character. Were this disease prevalent in epidemics so frequent as authors ask us to believe, we should be able to give from statistical data a complete account

of them in their individual and in their grouped or cyclical characters, but statistics afford no evidence of the occurrence of any epidemic. The group of diseases called puerperal fever is ever with us, its frequency varying slightly, never rising very high, never sinking very low, always governed by an average. This average of deaths in every community is an average of awful calamity, which we struggle to diminish by treatment, glad to escape from the task of encountering the additional evil that would be raised by epidemic prevalence.

In a meeting of practitioners such as this I make these preliminary remarks as a mere exordium, well knowing that nothing is required to heighten your sense of the interest and importance of the subject. Medical studies do not blunt the sensibility or harden the heart. Who is there so callous as not to be moved by the enthusiasm of a physician when he stands at the bedside of a young wife suffering, and, perhaps, dying, in giving life and joy to others? All of us are frequently in this responsible position, and I dare to say that none of us feels quite satisfied in it. There is not the vacant, hopeless, observation of acute hydrocephalus, nor the melancholy soothing of cancer, but the restless care of a fever, the watching narrowly with a view to judicious interference, watching, well done in proportion to the depth of knowledge and the quickness of intelligence and the warmth of sympathy; interference, judicious in proportion to the wisdom and experience and skill of the watcher. The wisest feels most deeply the want of more knowledge. The most experienced feels most acutely how little power he has to govern a case, how often he is a mere looker-on.

Our topic this evening is the treatment of puerperal fever—how to interfere judiciously, how to govern a case, how to conduct mere management. My remarks are thrown into the form of an address, suited, I hope, in some degree, for this occasion. I do not propose to elucidate any special point, to drive home a scientific argument, to suggest a novel treatment. Such are the objects of the communications which will be laid before you during the session. Mine is to give an address according to the invitation with which you have honoured me, not to read a paper. An address has its own useful place in our meetings; but it is never to be forgotten that the work of our societies is not the hearing of addresses, but the attentive listening to, and careful scrutiny of, papers, generally short, and occupying narrow limits, embodying the results of original observation and reflection. An address may be, as this is, an attempt to review the past, and to sketch the present, condition of a great matter.

In puerperal fever, as in most diseases, practice is more based upon theory than upon our often too much vaunted experience. We condemn old practices chiefly because we have new theories. There can be no doubt that this is a just proceeding, if our new theories are not mere fancies but based on increase of knowledge; and accordingly I shall show the connection of our new treatments with our new theories. However flimsy these theories may be, they are our guides, and they delight and encourage the inquiring spirit of the human mind. Cullen and Heberden based their therapeutics on Hippocratic observation. The Hunters and Laennec on morbid anatomy. The moderns specially on histology and chemistry. Bacteria and sepsin rule us to-day, while mere inflammation has lost its supremacy. We do not see in our change of treatment evidence of any change in the disease, but the reflection of our increase of knowledge.

A great old obsolete plan of treatment is not to be regarded as erroneous or bad, and so contrasted with ours. Such plans were not the fruits of caprice, nor the *ipse dixit* of great and famous physicians, but represented the knowledge and wisdom of their times. I have lived long enough to see the gradual decadence of the antiphlogistic treatment of Gordon, with its venesection and leeching and blistering. Heat of skin, rapidity of pulse, and abdominal pain were

the notes of inflammatory disease which was to be attacked and cured if possible. Since these days much confusion of doctrine has prevailed, and there have been many variations of treatment. The view that the disease was a special fever occurring in many forms, such as are described by Ferguson, led to correspondingly various treatments, which were not materially affected by the great phlebotic discovery which in this country we associate with the name of Robert Lee. Indeed, since the days of antiphlogistics, no great therapeutical plan has been common, for no great medical doctrine has prevailed. The profession has relied much on special drugs in the hope of curing rather than treating the disease whatever it might be; and latterly many have devoted themselves to treating symptoms. Some years ago we heard much of medicines to make the pulse slower; now, in accord with our temperature diligence, we have great stress laid on reducing it.

Living among great physicians, and, as a young practitioner, willingly submitting myself to them, I have seen several changes of treatment. In my earliest days, as a hospital resident and for some time subsequently, while bleeding was a decaying treatment, the great remedy was calomel and opium, and I well remember the improvement in the prognosis which was based on the fortunate but rare occurrence of pytalism. Gradually the calomel disappeared, because it almost always produced painful and debilitating diarrhoea, and it was replaced by blue-pill. Then the mercurial disappeared entirely; and, under the influence of the teaching of Graves, opium alone became the great resort; and this medicine still keeps its place as a valuable adjuvant in treatment. While its great utility is incontestable, I feel bound to record that I have often seen it act injuriously from its being used in far too large doses. The last treatment which had a passing pre-eminence was the copious administration of food and alcohol. I have been in practice during the whole existence of this modern and still-surviving plan—not a mere spectator or willing subject of older advisers, but taking an active part in the management of grave cases. Experience has taught me that there is no more delicate work in practice than the arrangement of the food and drink; and no part of treatment have I seen so overdone, with the result of producing intense present discomfort, as well as an injurious influence on the progress of the cases. This mismanagement has always been the excessive administration of alcoholic stimulants, apparently under the belief that if a little is good more is better, and that excess is scarcely attainable and not to be feared. The practice was derived from London, and I hope London will have the honour of putting an end to it. Stories of quantities administered, that are scarcely credible, are probably still in all your memories; and I can testify from my own knowledge that they are not exaggerated. Great practitioners boastfully narrated how much they had succeeded in pouring into their patients, and this when they were not in a short critical period of weakness; and the brandy practice and boasting extended even to the treatment of babes!

Although I have seen no treatment by ipecacuanha, yet there have been in my time several "cures" introduced, which have fortunately passed quickly into oblivion. The search for "cures" is, as yet at least, a wild-goose chase. We have a long course to pursue in acquiring intelligence regarding the disease to be cured before we can hope even for a well-established plan of treatment.

It is not uncommon, nowadays, to confine the name of puerperal fever to septicæmia and pyæmia occurring after delivery. It appears to me, however, to be better, even on mere theoretical grounds, to include all the ordinary diseases of the lying-in chamber, which are accompanied by fever, and which may be fatal. In practice we cannot meantime maintain the limitation to septicæmia and pyæmia, because in many cases we cannot be sure of our diagnosis, and because a case may begin as one case and be complicated with another as it advances.

In addition to septicæmia and pyæmia, which are the result of the growth in the blood of certain micrococci having the power of rapidly multiplying, we have sapræmia, or mere poisoning by the chemical products of putrefaction, and we have simple or traumatic inflammatory fever.

Simple inflammatory or traumatic fever is often very alarming on account of the severity of the symptoms, also on account of the extent of the inflammation. There seems to be in addition to the influence of traumatism, in some cases, a temporary inflammatory diathesis, the region of the womb being not the only one attacked, but, in addition, the kidneys or the organs in the chest, or the encephalon, all at once. Sometimes the inflammation attacks the remote parts, while the womb and its neighbourhood are unaffected by it. But most frequently the disease is a parametritis, or a perimetritis which may become so extensive as to form a general peritonitis.

In these cases, when pain is great, the pulse quick and hard, the skin hot and dry, there is generally much benefit derived from the old antiphlogistic regimen and treatment; but now the regimen and treatment are not used with what we may call the rigour and severity of our predecessors. Patients are generally allowed soup daily, in addition to the appropriate quantity of slops, that is, bread and milk and tea. Venesection is rarely practised. I have never used the lancet, nor do I remember hearing of its use for the last twenty years. Leeching is frequently resorted to, the site being above the groins on one or on both sides, that side of course being preferred in which there happens to be most pain. Not fewer than a dozen leeches are applied, and the bleeding may be encouraged to a loss, always only vaguely estimated, and varying according to the hardness of the pulse and the constitutional condition of the patient. The leeching may be repeated if necessary. It is generally followed by well-marked relief of pain and some improvement of the general condition.

While bleeding is most relied upon in the earliest days of the fever, blistering has occasionally a place in the later days. Poulticing is always used. The very painful turpentine stupe is a common application; but in some cases the blister is of great value. It gives much less pain than the turpentine stupe, often, indeed, very little pain, and its effects are not so transitory; besides it causes a copious transudation of serum and subsequently of pus. The blister should be large, even to covering the greater part of the abdomen between the umbilicus and pubes. It should be an old-fashioned rising blister, the *emplastrum lyttæ*; not such blistering as is nowadays much, and perhaps usefully, employed in other cases, where a blistering fluid raises very rapidly the epithelium, producing little irritation, the skin being only slightly and temporarily reddened. Great irritation and effusion of serum copiously are what is desired here.

Opium is almost always used, and there are great variations in the quantity given, and in the preparation that may be preferred. A good dose of one or two grains at bedtime, to procure sleep, is an almost constant prescription. Advantage is often also found in using the drug during the day if it does not stop the secretions, dry the mouth, and destroy the inclination to take and the power to digest food. In cases where there is much pain, and especially a state of nervous agitation of body and restlessness of mind, the repeated daily use of the drug is most valuable. Many rely upon the copious administration of opium, without any regard to the peculiarities of the case, considering the continued moderate narcotism it produces as the most favourable condition for the patient's recovery. I do not adopt this view of the utility of opium and its preparations, and, therefore, do not press its use as an object in itself, but use it freely when it does not disagree, as a stimulant narcotic to allay restlessness, to soothe pain, to procure sleep.

In severe cases, with much local peritonitic tenderness, a mercurial is advantageously combined with the opium. Many have a special confidence in the calomel, but I hold that it is generally best given as the simple blue pill, about six grains in the course of the day. Or the blue ointment may be applied on the abdomen or elsewhere. Should evidence of hydrargyrisms appear, the further action of the drug is checked by partial or complete discontinuance of it. Many eminent practitioners, especially in Scotland, make no use of mercurials in any form of puerperal fever.

Ever since I began practice there has been less, and still less, of what is, or used to be, called heroic practice in inflammatory cases; and now it is not uncommon to see them indiscriminately treated by opium and stimulants, with poulticing locally. My own judgment of this important practical matter is that a large number do well on this plan if it is conducted not heroically but gently; that, indeed, in many delicate women, with attacks of slight severity, it is the best plan of treatment. But the antiphlogistic regimen and treatment, as I have sketched it, is proper for the majority of cases, demanding of course such modifications as may adapt it to the peculiarities of each individual example.

The next class of cases, that of *sapremia*, or of simple putrid intoxication—poisoning not by an organism multiplying in the blood, but by the passing into it of the chemical products of putrid decomposition—is one upon which much light has been recently thrown, and with the most beneficent results in practice. Like the other forms of the so-called puerperal fever, this I shall treat as a separate entity, and it frequently is so. But it may be combined with the traumatic fever of inflammation, and it is especially liable to be combined with *septicæmia* and *pyæmia*. Indeed it has long been, and still is, the habit to speak of *septicæmia* and *pyæmia* as diseases of putrefaction, but this is a mistake. Putridity of the discharges is not an essential part of these diseases at all, though it often accompanies them. The organisms which cause *septicæmia* and *pyæmia* probably take no part in putrefaction. They live in the discharges, and are conveyed or pass into the blood, where they multiply indefinitely. The organisms which cause putrefaction, whether the bacterium *termo*, or others in addition, may pass into the blood with the putrid fluids to produce *sapremia*, but they do not survive, far less grow therein.

We have, then, in *sapremia*, when uncomplicated, a very simple problem. Putrid ichor is absorbed or flows through the uterine sinuses, or otherwise, into the circulation. Its poisonous constituents are eliminated rapidly from the blood; for if the supply is stopped the *sapremic* phenomena quickly disappear. When once in the blood it does not increase in it, ferment-like, independently of any further supply. *Sapremia* is kept up by a continuous supply of the poison. It disappears when the supply from without is stopped. To stop the supply is the problem of cure.

Fetor of the discharges has to be searched for in all cases of puerperal fever. It may be easily discovered by its strength; or it may be concealed, especially if the patient is kept very clean, and if vaginal deodorizing washes are used. The finger, if there is suspicion, or even the whole hand, carefully carbolized, may be passed into the uterus, to find the fetor and its cause, and peradventure to remove them. There may be putridity of discharges alone, but generally there is some decomposing substance, and more than mere bloodclot, a patch of membrane, and probably of chorion, a small bit of placenta, or some hypertrophied decidua mass. Sometimes the putrid fluid is retained *in utero*, and it may be discharged in great gushes, flowing at successive intervals.

Sepsin, or chemical products of decomposition dissolved in water are absorbed by the extensive mucous surfaces of the vagina and uterus, with their lymphatics,

and by the placental and other wounds in the genital tract. Or they pass freely into the uterine sinuses and thus into the general circulation. The result is quick pulse and respiration, high temperature, delirium, and often purging. If the poisoning is slight, symptoms are slight. If the poisoning is by a large dose the symptoms are urgent, and death may result, and this without any added septicæmia to produce the fatal event.

During the currency of the disease or poisoning there is the possibility of a cure, almost sudden, by removing the fœtus or stopping the supply of the poison. Nothing is more striking or more gratifying in the whole practice of medicine than this sudden recovery; and, as it is often produced by art, it deserves the name of a cure. A patient in the most alarming condition, apparently within a few hours of death, is appropriately treated, and within a few hours alarm has entirely subsided. It is not in lying-in women alone that such cases are seen; but sapræmia is more frequently observed in them than in others, and the joy of recovery is greater because the foreseen danger is greater, for evident reasons.

An aggravated case of this kind was recently under my care in St. Bartholomew's Hospital, and I shall give you a sketch of it from the notes of Mr. Nall. The largeness of the retained placental mass made the cause of the disease evident and easily discovered; and in this respect it is not like the run of similar cases which are classed under the designation puerperal fever. The recovery in it was so great, so quick, and so nearly complete, as to be scarcely credible. The woman appeared to be at the point of death. It was apparently not worth while to disturb her by treatment. In a few hours after the treatment she was comfortable, and every alarming symptom had disappeared. Yet for some days there was slight recurrence of fœtus and persistence of diminished symptoms, but not to such a degree as to cause any suffering or alarm for the ultimate safety of the patient. Were the case not a typical one I should not take up your time with it.

A. E. was delivered naturally of her second child on June 8th. Flooding occurred after the birth of the child, and slight blood loss continued for seven days. Then the lochia became fetid. On the eighth day she had rigors, which were repeated daily. She was brought into the hospital on the tenth day, and was delirious during the night. On the eleventh day of her lying-in, when I first saw her, she had no complaint of pain, was pale, sick, frequently vomiting, troubled with diarrhœa; the uterus tender; breath sweet; respiration hurried, 44; pulse 146; temperature 104.2°. copious flow of stinking lochia. A piece of placenta was removed from the vagina. Under the influence of chloroform the hand was introduced into the uterus, which was soft and easily admitted it, and adherent placental masses were removed, some small shreds being left after many had been separated by volsella. The whole genital tract was then washed out by copious injections of carbolic lotion (1 in 30). Ergot of rye was administered, and the uterus was washed out every four hours during the day. The report of the next day bears that she had a good night without delirium, that the bowels had been twice moved, the motions being thin, yellow, and offensive. The discharge was slight and slightly fetid; the breasts were tender and swollen; the pulse had fallen to 100, the respirations to 36, and the highest temperature was 101.4°. The whole aspect of the case had changed from despair to hopefulness. Ergot was continued for some days, and the carbolic washings as long as any trace of fœtus was found. Recovery was uninterrupted; indeed, it may be said there was no process of recovery, there was only convalescence. Such a progress is not seen in any other form of puerperal fever. The theory of sapræmia accounts for the rapid cure, while the theory of the other forms of puerperal fever explains their gradual advance from bad to worse, or to recovery.

Sapraemia is treated earnestly, even heroically if necessary, with a view to its own cure, and with a view to the prevention of the complications, inflammatory, septicæmic, or pyæmic, which it is very likely to bring in its train. Heroic treatment may be required to reach the remotest part of the genital tract in search for decomposing matter, or to ascertain that there is nothing but putrid lochia in the case. Mere vaginal washing may suffice, or intra-uterine washing, or the volsella may be passed into the uterus to grope for the decomposing structure, or with the same view a finger or fingers may be passed, or even the whole hand; and it may be necessary to dilate the cervix preliminarily. Most of this may be done without an anæsthetic, but where the hand is to be introduced into the vagina, the previous induction of anæsthesia is desirable.

The lotion which I always use is the carbolic, of the strength of 1 in 40, or occasionally 1 in 30. It is used tepid or warm. In conducting the operation it is necessary to be very gentle, to avoid the introduction of air into the passages, and to see that the fluid runs out freely. If the os uteri externum and internum are not widely open, a pipe with double current should be used. The whole proceeding should cause little or no pain, and, for an ordinary washing, a pint or a pint and a half may be passed. But if the discharges are copious and fetid, more may be required, and the rule is to continue the injection so long as it comes away foul or perceptibly fetid. Of course, a bowl is to be so used as to receive all the lotion as it is discharged, in order to save the bed-linen from being wetted. When the uterus is washed out the medical attendant conducts the operation, but vaginal washings may be left to the nurse. The washings are to be repeated from twice to four times a day if the fetor persists in the discharges. After the fetor is suppressed twice a day is sufficient. If the discharges become natural, and if the symptoms of sapraemia disappear, the washings are stopped. In any case they are required only for a few days.

These antiseptic washings constitute the great or essential treatment of sapraemia—a treatment, as already said, so direct in its action, and so successful, that it may be called a cure. Though these washings have been described by ancient authors, and though they were recommended by Harvey and by Baudelocque, it is well known to you that no such practice was in use among us till the antiseptic theory of treatment was promulgated. Yet they are not covered by the antiseptic theory, for you know it was based on the presence of bacteria which passed into the blood, and the antiseptic treatment was planned to destroy them or prevent them reaching the wounded surface. Here we use antiseptics not with these views, but to remove and arrest putrefaction, with a view to stopping the supply of a chemical, not a living, poison, the product of putrefaction, which enters the blood and endangers the constitution.

Besides the washings out, a case may demand many attentions, and cares too varied and too uncertain of occurrence for me to enter on them here. But to one I must allude as probably directly useful. It is the administration of ergot. A drachm of the liquid extract, in divided doses, should be given daily for a few days. The object of its use is to induce permanent contraction of the uterus or uterine retraction. This diminishes the uterine cavity, in which the discharge accumulates; it thus also lessens the surface absorbing the putrid poison, and the contraction of the walls of the organ may to some extent prevent the passage of the fetid fluid along the vessels into the circulation. Of course, should it be desirable, the drug may be given hypodermically, ergotin being used instead of the liquid extract.

Perhaps I have made the pathology of sapraemia too simple; for, in addition to what I have said, it is necessary to add that fetid lochia do not always poison

the constitution. They generally do so, but not invariably. They may flow in intense putridity, and yet be apparently not absorbed, as is generally the case. Why the putrid ichor is in some cases not absorbed I shall not here attempt to explain.

I know no reason why septicæmia and pyæmia should be called *real* puerperal fever, yet this is a common mode of speaking. The simple inflammatory fever, and the sapræmic fever, are not less really fever, nor less really puerperal. Probably the notion arises from the fact that grave cases of fever after delivery are for the most part septicæmic, or pyæmic, and that the great majority of the deaths in childbed is produced by these diseases. There has always, indeed, been a tendency to regard puerperal fever as desperate, or almost certainly fatal. I can remember well the saying of an eminent physician, with whose retrospective diagnosis many agreed, that if a case recovered it was not one of real puerperal fever. Probably he did not mean his words to be held as strictly true, but to express his sense of the hopelessness of such cases. This disheartening opinion should not be entertained, for it is not based on ascertained truth, and it induces despondency and feebleness in treatment which are prejudicial to the thorough management of a case. The pyæmic cases with their embolism, inflammation, and abscess, are more dangerous than the septicæmic, but even in pyæmia there are numerous recoveries. Every one has heard of rare and marvellous convalescence in pyæmia, even after several joints have suppurated; but these are very far from being the only instances. Many less severe cases survive the disease.

I may consider simultaneously the treatment of these two diseases. They are often combined, and their treatment is identical, if we except such surgical interference as is sometimes required in cases of pyæmia, a department into which I do not propose to enter. I have said that pyæmia and septicæmia may be combined, and while this is probably a frequent occurrence, it should also be remembered that all the forms of puerperal fever may be simultaneously present in one case. The separate consideration of simple inflammatory fever and of sapræmia is demanded by their utterly different pathology, and by their distinct indications of treatment. For the inflammatory fever we have some modification of the venerable established antiphlogistic method. For the sapræmia we have the arrestment of the putrid poisoning. For the septicæmia and pyæmia we have no treatment in any sense antidotal or curative in the humblest meaning of that word.

Cases of pyæmia and septicæmia are to be managed rather than treated. The word treatment implies too high an estimate of the physician's powers; or if not too high, at least a too definite view of them. We cannot arrest or even moderate the storm, but we may guide the bark through it. When the organisms producing these diseases are in the blood we cannot kill them, nor do we know any means of certainly controlling their growth. But we may wisely consider the constitutional and local circumstances of the patient, and judiciously interfere to modify them with a view to the patient's survival.

One unsound tree in a forest may be covered with lichen and fungus, and the tree may slowly die, or be killed. But it may survive, and becoming healthy, throw off the morbid growth which endangered it. The organisms of pyæmia and septicæmia find a favourable nidus for development in the weak, the unhealthy, the hopeless, the ashamed, the sad—in those who have been exhausted by a long labour or injured in the course of a severe one. But the attacked do not certainly die. The organisms may grow and grow, and cause death, but they are not necessarily fatal; their growth may be arrested, and they may all disappear. Debilitating and depressing conditions favour their development. Health and strength favour their disappearance. These principles are the foundation of

our management; and experience, daily increasing, confirms the conviction that the foundation is not laid on sand.

Good nursing, careful feeding, prudent stimulation—these are the great points. In all of them there is now progressive improvement. While it is impossible to appreciate with any exactness what we owe to these, no one will deny the comparatively great advantages we now gain by them. It would be out of place to enter upon the subject of nursing here. It is no peculiarity of cases of septicæmia and pyæmia to require good nursing, and the subject is specially referred to in connection with these diseases because, in default of any direct treatment, we specially consider what remains for us to attend to.

On feeding and the use of stimulants I might content myself by making the same remarks as on nursing; but I wish to insist on the great necessity for more attention being paid to the niceties of these important departments. The food and drink should not be left altogether to the nurse. In quality, quantity, and time they should be regulated; and this cannot be done by previously fixed rules, but by directions modified according to the observations daily or hourly made in each individual case. Milk and beef-tea are the staple of the patient's diet, and they may be varied almost indefinitely, to suit minor emergencies as they arise. In regard to food, the general rule is to give as much as the patient can take without evident disorder arising from it. It is seldom that too much is taken, for a common difficulty lies in overcoming the aversion to food.

The use of stimulants requires a little more discussion. At present the favourites are brandy and champagne, and I adhere to the general voice in preferring them—on one condition, that they be really good. At the same time I make no objection to other wines and spirits. Brandy and champagne are common and simple, and, for me at least, it would be only an affectation of refinement to appraise the merits of different wines and different vintages. But I am sure that, in regard to all stimulants, our aim should be to use as little as possible. Often, at least for a time, none at all is required. Occasionally, but rarely, in a crisis of weakness, brandy is to be administered largely. Always the principle holds good that too much will do more harm than too little. I am sure that it is a common error to give too much. Excess of food may be passed along the primæ viæ without entailing any considerable injury; not so excess of alcohol. Food is rarely desired by the patient, while she often wishes alcohol; because, as it is given, it assuages thirst for a time and produces at once an agreeable excitement.

A sketch of the treatment of septicæmia and pyæmia would be bald and imperfect if it were confined to the paramount matters—nursing, food, and stimulants. Great attention has to be paid to the general condition and to the state of health as indicated by prominent symptoms. Iron and quinine are now frequently administered, and with great advantage; and what a change of view does this imply if we look back to the days of Gordon, or even of Fergusson? I can well remember the astonishment and unsettlement of mind produced by the recommendation of Hamilton Bell to use the old tincture of the muriate of iron in erysipelas, and I frequently witnessed the earliest employment of the same remedy in the cognate diseases now under discussion, chiefly by the advice of the elder Begbie. It was always the custom to combine bitters with the iron, but now the regal bitter, quinine, is used, not only as a stomachic vehicle, but with the direct purpose of reducing the temperature whose regular observation helps so greatly to guide us now—a chart unknown in the days of Bell and Begbie. Besides quinine and salicin, the influence of cold is now familiarly resorted to to reduce temperature when it rises above 102° or 103° , and this is done with the result of giving comfort and securing probably real gain. Many physicians, Schröder, Osterloh, and Spiegelberg, in Germany, and especially Playfair in this country, have used the

cold bath to reduce temperature when it is very high; but I have no experience with it. Temperature does not long remain high in this disease, varying greatly and often rapidly; and for keeping it moderate, quinine or salicin, in large doses, with regulation of the heat of the room, of the bedclothes, and of tepid sponging, are generally sufficient.

Ice is often taken internally against thirst, and it is a delicious mouthful; but the craving thirst is not relieved. The dose is repeated and repeated in vain. For the relief of thirst, the old remedies, such as toast-water, have more real value. But the urgency of thirst is minimized by the proper management of the case. At least, I can have no doubt that in the days of what I call the excessive use of wine or brandy, or of opium, we heard a deal more of the suffering from thirst than we do now.

Ice is much used to arrest vomiting, which is so common a symptom of the peritonitis of puerperal patients, and it is sometimes effectual. For this distressing symptom remedies are numerous, and their largeness of number is evidence of their uncertain action. The best is of course that most used—the hydrocyanic acid and bismuth mixture, without or with morphia.

With or without sickness and vomiting there may be flatulence, and it is sometimes so great as to embarrass the heart and lungs. In extreme cases relief has been afforded by letting off the air by a small trocar and canula, but of this proceeding I have little experience. The remedies which I have found of most use are charcoal, in teaspoonful doses, given in water once or twice daily; or turpentine, in ten-drop doses, given in water or some simple vehicle, three or four times daily.

The hot linseed-meal poultice is almost always a grateful and useful application to the hypogastric region, relieving pain and promoting the lochial flow. Besides, when the skin is hot and dry, it is a valuable diaphoretic.

Opium in some form is invariably administered, and almost always with advantage. Occasionally, indeed, it produces great mental disturbance and uneasiness, or vomiting, or dryness of tongue; and, in such cases, if a change of the preparation does not bring better results, the medicine may have to be given up, or used only to produce sleep. Indeed, apart from any injurious effects, it is often a good plan, when pain is not urgent, to give it only to secure a good night. But generally it is given repeatedly during the day, either to relieve pain or with a view to its soothing and supporting rather than narcotizing action.

Opium and other remedies are also often used against diarrhoea, and in this way much good may be done. But it is necessary to pay much attention to this purging, generally of thin highly-coloured dejecta, for undoubtedly it often should be encouraged rather than checked; and, perhaps fortunately, it is often not easy to check it. The physician should see all the motions, so as to justly estimate their quantity and character, and he should not regard it as his duty to try to check free and even copious evacuations, or to get the stools in a formed state. He will be guided in his judgment on this point by the strength of the patient and the amount of food consumed.

During the whole course of the disease the regular flow of the lochia is anxiously looked for; and, should they be suppressed, an attempt is made to bring them back by hot fomentations to the vulva and hypogastrium; for it is naturally regarded as desirable that there should be lochial discharge, and that it should not be retained. But, besides its mere flow, the character of the discharge, especially as to fetor, is scrutinized. If there is fetor there is probably sapræmia complicating the septicæmia or pyæmia, and this fetor is treated by antiseptic lotions, as already described. But fetor of discharges forms no part of septicæmia or pyæmia. The bacteria or micrococci of these diseases flourish when there is

no fœtor. At present, however, such is the enthusiasm for antiseptics, that it is considered desirable to have the womb well washed out once or twice daily by carbolic lotion, even when there is no fœtor; and meantime I consider it good practice to do this twice daily while there is urgency, if the discharges are not quite healthy in all respects. The intra-uterine washing cannot work upon the infected blood circulating everywhere in the body, and carrying with it the baneful organisms, but it can keep the wounds clean; and, if the womb or vagina is a nursing-ground for further supplies of these organisms, then by the antiseptic washing the nursery is destroyed. The further supply of the contagium vivum is stopped, for the micrococci are killed by the carbolic wash.

Such, gentlemen, is an outline of the treatment of a group of terrible diseases. How imperfect it is, no one can feel more strongly than I do. It is not a fixed treatment, but the treatment of to-day. Were I the wisest therapist, and had I the best rhetoric, my description would still be imperfect; for no one can describe, with a near approach to perfection, what is imperfectly known and very dimly understood. But the variations of health and constitution, of complications, and of other conditions, are so numerous that a perfect theory or system of treatment would not carry with it directions for every individual case. Boundless scope, after all, would be left for intelligent interference of the practitioner warmed into zeal by a kindly sympathizing heart.

Meeting with these puerperal diseases, the practitioner dare not fold his hands in apathy and inaction on account of the incompleteness of his knowledge. No one would listen to him were he to proclaim that all our experience and all our laboriously acquired information had yielded no fruit for the benefit of suffering women. He is face to face with great and terrible danger, yet his position is not one of imminent peril to himself as in the case of a soldier, who, like him, has to meet unexpected combinations and unforeseen difficulties, and who, whether he has little or much knowledge, must act and that at once, for in boldness there is safety, in delay there is only disaster; and experience has amply demonstrated that no case is to be utterly despaired of till the moribund state supervenes, however severe and complicated it may be.

We have said that puerperal fever affects especially the weak, the unhealthy, the hopeless, the ashamed, those who have been exhausted by a long labour or injured in the course of a severe one; and there is no need to expatiate on the great field here opened up for the beneficent activity of the physician. To strengthen, to heal, to encourage, to console, to manage labour, to reduce injuries to a minimum, are all objects to be kept in mind; not indeed with a view only to the treatment of puerperal fever, but in order to its prevention. It is a trite saying that prevention is better than cure, and I think there can be no doubt that more suffering is avoided and more lives saved on this principle than by treatment; and I feel impelled to say a few words on this subject.

The prevention of simple inflammatory and of sapræmic fever demands no special consideration here; it is the prevention of septicæmia and pyæmia, or of contagious puerperal fever, that is generally in view when prophylaxis is spoken of, and few subjects are at present more discussed. The late trials of midwives for spreading puerperal fever, and the reiterated attacks on maternity hospitals, are familiar to all; and I believe all will admit that we want much more light and more wisdom in our dealings with these matters. They are not identical, for the propagation of puerperal fever in a hospital involves considerations which have no place in its propagation in a private or out-of-door dispensary practice. Hospitals are the seat of epidemics of fearful character. The house becomes tainted, and every lying-in woman in it is in great danger from the infection. Fortunately, the infection does not become so intense as to affect all, but such a

degree of intensity is quite conceivable. In an ordinary dairy no vessel of milk escapes the action of the bacterium lactis; every dish becomes curdled. In home practice the infection reaches patients only sporadically; the disease, however, occasionally dogging the footsteps of an individual practitioner. There are no epidemics, no prevalence of the infection over countries. A lying-in woman can easily find a safe home. The analogy of the curdling of milk does not apply here, for it is difficult to find a place where there is no bacterium lactis where milk does not curdle.

Against the dangers of both hospital and home practice we find some degree of protection in antiseptic midwifery, a great practical subject which I have discussed in an address lately given to the Medical Society of London. Antiseptics have, as yet at least, but little to do with the treatment of the infectious forms of puerperal fever; they avail greatly in the prophylaxis. This has been well exemplified in the case of hospitals. In private practice the protective power is not so easily demonstrated; yet I believe the plan is there also invaluable, rendering the patient comparatively safe and practically excluding all danger of infection by the careful accoucheur.

Ventilation and cleanliness were, up to the present time, the great resorts of medicine against endemics of puerperal fever, and they had little and only temporary effect. They are, however, even now justly valued very highly; but, with antiseptics, we come into closer quarters with the enemy we have to subdue, and have a weapon of greater potency, and consequently we have more success. In spite of all our prophylaxis, however, puerperal fever prevails. The enemy succeeds in the attack and the physician has to make every effort to rescue his patient by treatment.

Although we have at present no prospect of being able to stamp out the infectious forms of puerperal fever or of reducing them to comparative insignificance, there is yet, even as to the attainment of these great ends, some ground for hope arising from the success of scientific investigations. Vaccination seems destined only to a brief further protraction of its splendid and useful isolation and of the mystery of its operation. The results of Pasteur's researches on the cholera of the domestic fowl and of Toussaint's and Greenfield's on anthrax show how a contagium vivum may have its potency diminished, or nearly annihilated, by methods having a strong analogy with those employed to reduce the potency of the variolous contagion. If one contagion can be so modified, we are led to ask, Why may not also that of puerperal fever be likewise? There are other researches by Greenfield and Buchner which justify the philanthropic hope that with lapse of time the deadly characters of the organisms of septicæmia and pyæmia may be changed into others more innocent. Such anticipations are little more than mere indulgence of the scientific imagination; but they are far from being useless or foolish, though to the merely practical man they may appear so.

The idea suggested by the researches of Pasteur, of Toussaint, of Greenfield, and Buchner may prove to be mere *ignes fatui*, but may, on the contrary, prove to be true guides. It is by following out such ideas, verifying or disproving them by new investigations, that progress is made in science. Progress in science is a fountain of purest pleasure to its promoters and of widespread beneficence to mankind.

The Society whose new session I have the honour to inaugurate is devoted to the advancement of science, and I dare in conclusion to suggest to every busy medical man here that he should make some department of it, perhaps a very small department, his peculiar study. By so doing he will keep a special perennial joy in his life of toil; he will be, if not a discoverer of new truth, at least a diffuser of it; he will be a useful and honoured member of this Society, he will

contribute to the elevation of medicine into a more and more useful profession, and of his medical brethren into a higher and higher position.

The healthy and diseased human body is not the greatest matter in the universe of things. Our profession acknowledges that there are others to whom, in respect of the value and grandeur of its aim, it willingly bows. But medicine offers more than sufficient scope for the greatest efforts of the greatest minds. It is for us to contribute to its prosperity and progress. *Floreat res medica.*—*Lancet*, Oct. 30, and Nov. 6, 1880.

On the Treatment with Alkalies of a little known Cause of Sterility.

CHARRIER, of Paris, calls attention (*Bull. Gén. de Thérap.*, Nos. 11 and 12, 1880) to an acid condition of the utero-vaginal mucus as a cause of sterility. He states that many women who are quite healthy, whose genital organs are perfectly normal, and who are married to healthy husbands remain sterile. The cause of this is frequently an acid condition of the uterine and vaginal mucus, which may be proved directly by the use of litmus paper. This condition is an absolute prevention of conception, because the spermatorrhœa die immediately. Accordingly, if the woman's mucous secretions give an acid reaction, she continues sterile. By treatment with alkalies, alkaline drinks and baths (Vichy water), and alkaline injections (1000 parts of water, sulph. of soda 90 parts, white of egg 1 part), the disease may be removed and conception follow. This, according to the author, explains the frequently incomprehensible results and numerous strange successes that follow the use of alkaline springs in sterile women. Two successful cases are given in illustration of the author's views. Professor Pajot also expresses himself as in agreement with the author's views.—*Edinburgh Med. Journal*, Nov. 1880.

Congenital Abnormality of Uterus simulating Retention of Menses.

DR. BRAXTON HICKS related at a late meeting of the Obstetrical Society of London (*Lancet*, Nov. 27, 1880), the history of a patient, aged twenty-four, who had never menstruated. About twelve weeks ago she had severe pain in the right hypochondrium, lasting about six weeks. About the same time she noticed an increasing swelling in the lower abdomen, and recently tension had become severe. On admission a tumour was felt reaching above the umbilicus, tense and semi-fluctuating, causing distress and œdema of the legs. She had not distinctly suffered from monthly increase of distress. The vagina was nearly of normal length, ending in a kind of transverse depression, beyond which was felt the tumour, exactly resembling the uterus distended with menses. The author had had such a case, apparently exactly similar, the very extremity of the vagina and os uteri being closed. The patient was therefore placed under chloroform and a trocar plunged in, where a depression like a dilated os beyond the closure could be felt. Nothing but a little bloody serum flowed. The sound was then passed up into the centre of what seemed to be the uterus, but still no sign of menstrual fluid. Further interference was then abandoned, the tapping having been done antiseptically. In the night she became feverish, and died about thirty hours after the tapping. Post-mortem examination showed that there were neither uterus nor ovaries, but a large cyst attached to the upper end of the vagina; walls very irregular within, smooth without. It was half filled with a cheesy white matter, and the rest with dark grumous material. The wall above was thinned and perforated in two or three places, where the contents, in a fetid condition, had escaped into the peritoneal cavity. The trocar had passed through two layers of peritoneum. Probably the operation had only hastened the rupture.

A report by Dr. GALABIN on the Microscopic Structure of the Cyst was appended. The outer wall of fibrous tissue was only about one-twelfth of an inch thick. The soft material within was made up of round cells, longer than leucocytes, having a fibrillar reticulum amongst them. It was to be regarded as a soft sarcomatous growth.

Dr. ROUTH said that the practical point which came out was, that in another case the aspirator should be used to see the nature of the fluid, if any, before a trocar was employed.

Medical Jurisprudence and Toxicology.

Antidotes.

The following collection of antidotes is taken from the *Allgemeine Wiener Medizinische Zeitung*:—

Morphia. Sulphate of copper, 1 gramme; distilled water, 40 grammes, for an emetic; half to be taken at once and the remainder in five minutes, if necessary. To be followed by strong coffee, and then every five minutes by tablespoonful doses of a mixture made by dissolving 4 grammes of tannic acid in 50 grammes of simple syrup.

Opium. As for morphia.

Veratria. As for morphia.

Savine. As for morphia.

Fungus-poisoning. As for morphia.

Stramonium. As for opium. May be followed by a hypodermic injection of morphia.

Nicotine. For the sickness resulting from tobacco-smoking, vinegar, 50 grammes; simple syrup, 50 grammes; water, 200 grammes; half to be taken at once, and then a tablespoonful every five minutes. For accidental poisoning by nicotine, same as for morphia. Also tannic acid, 4 grammes; syrup, 50 grammes; distilled water 200 grammes; a tablespoonful every five minutes.

Phosphorus. Sulphate of copper, 1 gramme; distilled water, 40 grammes; half to be taken at once, the rest in five minutes, if necessary. Then oil of turpentine, 30 grammes; white and yolk of two eggs; simple syrup, 50 grammes; peppermint water, 250 grammes, for an emulsion, to be well shaken; one tablespoonful every half hour until a fourth part has been taken, and then a tablespoonful every hour.

Burns by Phosphorus. Nitrate of silver, 2 grammes; distilled water, 20 grammes; to be used as a lotion.

Petroleum. Oily and mucilaginous drinks to be taken frequently.

Lunar Caustic. Common salt, 20 grammes; water, 300 grammes; half to be taken at once, then a tablespoonful every half hour with oily mucilaginous drinks.

Strychnia. Tannic acid, 3 grammes; syrup of marsh-mallow, 60 grammes; distilled water, 140 grammes; a tablespoonful every five minutes. Then chloralhydrate, 4 grammes; distilled water, 100 grammes; a tablespoonful every half hour.

Sausage Poisoning, and Poisoning by Decomposing Meat. Sulphate of copper, 1 gramme; distilled water, 40 grammes, for an emetic; half to be taken at once, and the remainder in five minutes, if necessary. With this may be given ether, 2 grammes; tincture of opium, 10 drops; distilled water, 150 grammes; a tablespoonful every half hour.

Ergot. As for sausage poisoning.—*London Med. Record*, Oct. 15, 1880.

MEDICAL NEWS.

MILK AS A CARRIER OF DISEASE.

The tireless inquisition which sanitarians are ceaselessly prosecuting into nature's methods of propagating disease has seldom been rewarded with a more valuable discovery in a more unpromising field, than that in regard to the portability of certain infectious maladies by means of milk; a fluid which from prehistoric times has formed so large a part of the food of juvenile humanity, and has as a rule, except on the score of aqueous dilution, been implicitly trusted by mankind.

The peculiar readiness with which milk absorbs disagreeable odours and flavours has long been a matter of common observation, but it is only within the past ten or twelve years, that its power of taking up the germs or disease poisons of several contagious affections and transplanting them from their original site to the congenial soil of some uninfected human organism, where they could flourish with renewed vigour, was detected. Doubtless much of this capacity for evil which is possessed by milk is due to the very circumstance of its obtaining access to infants and young children who have not been protected by previous attacks of scarlatina or enteric fever, but its chemical constitution being that of a dilute watery solution of highly complex nitrogenous matter, renders it almost as favourable a medium for the growth of bacteria as Pasteur's fluid itself, so that believers in the germ theory of disease contend its natural composition is peculiarly favourable on this account to the extension of its sphere of deleterious influence. Be this as it may, however, there is no question that more than a dozen localized epidemics of typhoid fever, scarlet fever and diphtheria (some of them affecting hundreds of individuals), the origin of which would otherwise have been shrouded in mystery, are now satisfactorily traced to dairy farms occasionally many miles from the scene of their deadly operations. In most instances the milkmen have strenuously denied that any typhoid fever poison could have found entrance to milk from the wells in which it was proved to have existed upon their premises, except during the process of washing out their milk cans, but knowing as we do how profitable and how difficult of detection is moderate aqueous adulteration, it requires all an optimist's faith in poor humanity to give credence to their statements.

We are led to call public attention to this subject at the present time by the fact that several recent English medical journals come to us bearing accounts of new epidemics, attributable to the infection of milk tainted with the poisons of typhoid fever, scarlatina, or diphtheria. Thus, for example,

at Southport, one case of typhoid after another was announced to the municipal authorities until in about two weeks a total of twenty-eight was reached. Such a rapidly invading epidemic demanded of course energetic measures for its repression and a careful inspection of the various dwellings in which the victims had been attacked was undertaken. The health officers found, however, to their surprise, that with two trifling exceptions these premises were all in good sanitary condition; but further investigation disclosed the fact that in every instance milk had been served to the families in which the typhoid fever had occurred from a particular dairy some miles distant, and upon the grounds of this dairyman was discovered a well horribly polluted with soakage from a filthy cess pit near it. In the words of the chairman, "chemical analysis showed that it was nothing but liquid sewage and calculated to spread disease wherever its influence extended," and the proof that this foul infecting material had been accomplishing the work for which it was so well "calculated," is met with in the circumstance that on stopping the milk supply from this dairy the epidemic ceased to spread, although not before two of the cases previously attacked had resulted fatally.

The infectious material, when scarlatina and diphtheria are conveyed by milk, probably falls into the fluid whilst standing in open vessels, or is rubbed off, attached to the epithelial cells of the epidermis during the process of milking in such a way as to gain access to the milk. In an example of this kind, recently the subject of judicial action in England, a medical officer of health stated before the magistrates that seven cases of diphtheria had occurred in his own practice, and that during inquiries made for the purpose of tracing the origin of the disease, he had heard of other instances, all of which as well as his own had been supplied with milk from the same establishment. Acting upon this hint he proceeded to examine the dairy from which the milk was obtained and found that a child was dying from malignant diphtheria on the premises, so that this case was, it seemed highly probable, the starting-point of the whole outbreak of the malady.

Still another fresh illustration of the dangers we are now considering is reported from the town of Dundee in Scotland, where an extended epidemic of scarlet fever is stated to have arisen among families supplied from two particular dairies. On careful investigation scarlatina was found to have been actually prevailing in the families of the dairymen in charge of these establishments before and at the time the other cases made their appearance.

Of course the only way to obtain a reasonable security for our families against this form of poisoning would be to follow the example of our English cousins and establish by law a system of thorough inspection of dairy farms, dairies, and cow-stables having special reference not only to the health of the animals and of their care-takers, but also to the state of

the wells from which the water for washing out the milk cans, pails, etc., is derived. How common it is to see even on well-kept farms the water supply for these and similar purposes obtained from the barn pump which for convenience in cold weather stands under the cow shed or inside the farmyard, where it is at all times liable to furnish a liquid dangerously contaminated with excrementitious matters from both man and beast. As a substitute for such legal supervision the most feasible plan would probably be for citizens to unite together into limited associations, which could employ experts to investigate and keep watch over the sanitary surroundings of dairy farms patronized by their members. Although such undertakings might be at first rather expensive, yet when the mere cost of a dozen cases of typhoid fever is considered, there is no doubt that the outlay would be a truly economical one, even if looked upon from a pecuniary point of view only, without estimating the far more important saving of human life and suffering. In cases where such co-operative societies could not be organized, or whilst travelling, it would be advisable to use only milk which has been thoroughly boiled for a considerable length of time.

Symmetrical Neuralgia in Diabetes.—Dr. Worms, of Paris, has called attention to the occurrence of symmetrical neuralgias in an advanced period of diabetes. He has recorded two examples—one affecting the sciatic nerve, and one the inferior dental—and believes that the symmetry of the affection is a characteristic of this form, as also is its peculiar severity. It does not yield to the ordinary treatment of neuralgia—quinine, morphia, bromide—and the pain varies in intensity with the amount of glycosuria.—*Lancet*, Oct. 30, 1880.

Simultaneous Fracture of both Patellæ.—M. de Beauvais related at the Paris Société de Médecine (*Union Méd.*) an example of this rare occurrence. A man, thirty years of age, and apparently in good health, was engaged in the game of leap-frog, and, having struck the ground with his feet, when on the point of springing forwards he felt as if he had received a blow on the legs, and heard a crackling sound. He fell on the ground, believing that some one had struck him. On his being carried to the hospital, a transverse fracture of each patella, with a separation of not more than two centimetres, was found to exist. This was effected by the violent contraction of the extensors. The patient had had rheumatism with cardiac complications formerly.—*Med. Times and Gaz.*, Oct. 9, 1880.

A New Method of Preserving Raw Meat.—A new and apparently most valuable method of preserving raw meat, discovered by Prof. Artimini, of Florence, bids fair to supply a long-felt want, and to have an appreciable effect upon our markets. According to a report by Professors Barff and Mills, of Glasgow, and Dr. Stevenson, of Guy's Hospital, meat six months old was found to be perfectly sound and good, the muscular fibres unchanged, and the nutritive properties unimpaired. The material employed is stated to be less expensive than salt, and not only wholesome, but pleasant to the taste.—*Med. Times and Gaz.*, Oct. 9, 1880.

A Triple Ovary.—Dr. Keppeler, on the occasion of his sixth ovariectomy (all successful), found a third ovary, with its corresponding tube, completely developed. According to Rokitsansky and Klebs, no such circumstance has hitherto been observed.—*Med. Times and Gaz.*, Oct. 9, 1880, from *Allg. Wien. Med. Zeit.*, Sept. 7.

Chian Turpentine and Cancer.—The Medical Committee of the Middlesex Hospital recently passed unanimously the following resolution: "That, as the results of a prolonged and careful trial of Chian turpentine in the treatment of cancer prove the drug to be quite useless as a cure for that disease, directions be given to the dispenser not to obtain any more of the drug for the cancer patients."—*Med. Times and Gazette*, Nov. 27, 1880.

Mr. Henry Morris, Surgeon of the Cancer Out-Patient Department of the Hospital, in a contribution to the *Lancet* (Nov. 27 and Dec. 4, 1880), on his experience with the use of the drug says he is "not able to report that there is a single symptom over which the drug seems to exercise even frequently, not to say constantly, an influence. It cannot be relied upon to assuage pain, to diminish or alter the character of the discharges, to check hemorrhage, or promote the destruction of the growth by ulceration or sloughing," and that the conclusion is forced upon him "that as a cure for cancer Chian turpentine is utterly valueless."

Medical College of Virginia.—This institution has just sustained a serious loss in the resignation of its talented Professor of Surgery, Dr. Hunter McGuire, of Richmond.

New Sanitaria.—A new winter resort for invalids has been recently established at Lakewood, a village on the line of the New Jersey Southern Railroad, about nine miles from the ocean and fifty from either Philadelphia or New York. The village is situated on the edge of extensive pine woods through which have been constructed numerous excellent roads. The soil is dry and sandy. The house is new and handsomely furnished and the cuisine is unexceptionable; each bedroom has an open wood fire. For the benefit of invalids in winter the verandas have been inclosed in glass.

A sanitarium has also recently been opened at Monterey, about 125 miles from San Francisco. The "Hotel del Monte" is a large building, with all the modern appliances of a first-class hotel, and accommodates 400 persons. It is situated in a grove of 106 acres of oak, pine, spruce, and cypress trees, and is within a quarter of a mile of the Bay of Monterey, with a fine sloping, sandy beach, admirably adapted for bathing. The climate is represented as charming, corresponding to our "Indian summer," with an equable temperature varying in the winter months from an average of 49° to 55°, and with a summer temperature averaging about 60° higher. It offers, in addition to beautiful and varied scenery, boating, fishing, and hunting to the sportsman.

Mr. Lister.—The Royal Medal of the Royal Society has been conferred on Professor Lister, in recognition of his important physiological services, and the advance in surgery due to his studies and application of antiseptic principles.

Mr. Lister is spoken of as the next President of the Clinical Society of London.

A Veteran Professor.

M. Chevreul has completed his fiftieth annual course of lectures on the Application of Chemistry to Organized Bodies, at the Museum of Natural History. M. Chevreul is in his ninety-fifth year and is still an indefatigable worker in the laboratory. His father attained the advanced age of one hundred and ten. The American Association for the Advancement of Science, during its recent session in Boston, sent a congratulatory telegram to the eminent savant, expressing the hope that he may be enabled to continue his labors until the end of the century.

Langenbeck's Seventieth Birthday.

In Berlin, on the 9th of November, a highly interesting celebration was held on the occasion of Professor Von Langenbeck, the distinguished German surgeon, on that day reaching his seventieth year; and, both from the military and the civil authorities, and from friends both near and far, he received an ovation which falls to the lot of few. The day began by a *reveille*, played before his door by the band of the Third Regiment of the Imperial Guard. Soon afterwards arrived private letters of most affectionate greeting from the Emperor of Germany and the Empress. The Crown Prince sent a telegram of congratulation from Wiesbaden, in his own name and that of his wife. The Emperor of Austria sent the Grand Cross of the Order of Francis Joseph; the King of Saxony, that of the Order of Albert. The Medical Faculty of the University of Berlin appeared as a body, and addressed Langenbeck through their Dean. A deputation also waited on him from the Frederick-William Military Medical School, whose Director-Surgeon-General (Schubert), in presenting a laurel wreath, addressed to Langenbeck the following words: "Ever since your arrival as Professor, in Berlin, our institution has rejoiced in your instruction, and we have all sat at your feet. In peace time, as in war, you have been our guiding star; and there is scarce a single doctor, either in our army or our marine, who is not personally indebted to you for surgical knowledge and power." A number of his former pupils, now professors in the universities of Germany, presented an elaborate address. Amongst those present were Professor Esmarch of Kiel, Billroth of Vienna, Schönborn of Königsberg, Lücke of Strasburg, Trendelenburg of Rostock, Hueter of Griefswald, and others. Count Moltke paid personally his respects, as well as a host of other distinguished persons. A few cordial and appreciative words, engrossed on vellum and signed by the President of the Royal College of Surgeons of England and a number of prominent British surgeons, reminded Professor Von Langenbeck of the high appreciation in which he was held in England.

Health of Charleston.—This city is now reported to be very healthy. The dengue had pretty much expended its force before the cold weather set in; since the appearance of ice (November 25) the disease seems to have completely disappeared. A few cases of influenza have been observed—one of them attended with sweatings, but it is doubtful if these were cases of dengue. As far as can be learned, the dengue originated in the northwestern portion of Charleston, about the end of June, and gradually extended. It may have exhibited itself earlier in Key West. It made its appearance at a later date in Summerville, Columbia, and other small towns on the line of the South Carolina Railroad—reaching Wilmington, N. C., where it appeared to a very slight extent and in a very mild form. Augusta, Savannah, Port Royal, and Beaufort were invaded in August and September. None of the Charleston cases, which were uncomplicated, proved fatal.

Diphtheria, which prevailed in Charleston for several years past, has almost entirely disappeared.

International Medical Congress, London, 1881.—We have received circulars informing us that the following subjects have been proposed for discussion:—

In Section V. (*Surgery*): 1. Recent advances in Abdominal Surgery; 2. On the surgical treatment of certain diseased conditions of the Kidney; 3. On the recent advances in the method of extracting Stone from the Bladder; 4. On the treatment of Operation of Wounds; 5. On the treatment of Aneurism by the elastic bandage; 6. On the comparative advantages of early and late resection in Diseases of Joints.

In Section VII. (*Diseases of Children*); Medical: 1. The real position of the so-called Rubeola, Rötheln or German Measles, and its relation to Scarlatina and Measles; 2. Syphilis as a cause of Rickets; 3. On the different kinds of Spinal Paralysis and Myelitis in children; 4. The conditions governing the occurrence of Albuminuria and of Paralysis as attendant on Diphtheria, or as Sequelæ; 5. The relationship of Chorea to Rheumatism, with especial reference to the nature of the heart-murmur which so frequently attends Chorea; 6. The forms of Acute Tuberculosis other than ordinary Tubercular Meningitis. Surgical: 1. The surgical treatment of Crôup and Diphtheria; 2. The surgical aspect of Tapping for Empyema; 3. Pathology and treatment of Genu Valgum; 4. The treatment of Diseases of the Joints, especially with a view to the prevention of deformity; 5. Treatment of Spinal Curvature, with special reference to Sayre's method; 6. The nature of the so-called Surgical Scarlet Fever.

In Section X. (*Otology*): 1. On the value of operations in which the Tympanic Membrane is incised; 2. On morbid growths within the ear and their treatment; 3. On loss of hearing where the external and middle ears are healthy.

In Section XIII. (*State Medicine*), first day: 1. Measures by which to prevent the Diffusion of different Communicable Diseases from country to country, or within the limits of any single country—*e. g.*, (1) yellow fever, cholera, plague; (2) enteric fever, scarlet fever, measles, whooping-cough, diphtheria; (3) syphilis; (4) glanders, hydrophobia, anthrax. Second day—2. Influence of various articles of Food (not including water) in spreading Parasitic, Zymotic, Tubercular, and other Diseases. Third day—3. Conditions to be imposed on the legally qualified practitioners of one country who may seek authority to practise in another country. 4. Precautions to be taken in medical nomenclature and classification to guard against false statistical conclusions.

These lists are only provisional, and subject to modification. The final lists will be published at an early day. Abstracts of papers to be read before the Sections will be published in May, 1881, in English, French, and German for the convenience of the members.

The Lord Mayor of London has expressed the satisfaction he shall have in doing everything in his power officially to promote the success of the International Medical Congress to be held in London next August, and his intention to tender to it an official welcome on the part of the citizens of London. It is understood to be the intention of the Lord Mayor to open the Mansion House for a State reception of the members of the Congress.

To Readers and Correspondents.—The editor will be happy to receive early intelligence of local events of general medical interest, or which it is desirable to bring to the notice of the profession. Local papers containing reports or news items should be marked.

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